This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

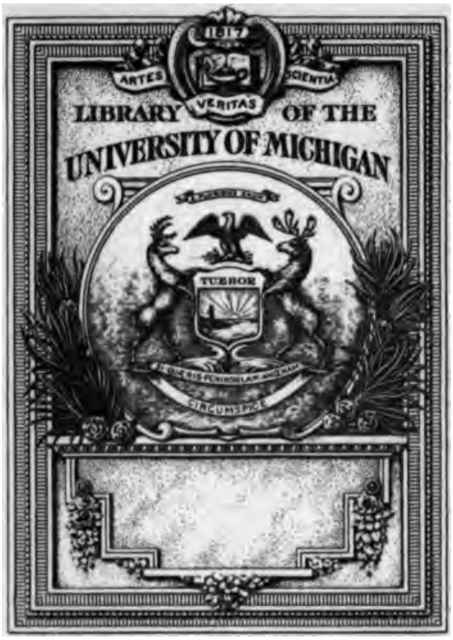
+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

B 816,269



LIBRARY OF THE UNIVERSITY OF MICHIGAN

RECEIVED IN EXCHANGE
FROM
The Law Library

VA
52
.A1

V A
52
.A1

ANNUAL REPORTS

OF THE

NAVY DEPARTMENT

FOR

THE YEAR 1897.

REPORT OF THE

SECRETARY OF THE NAVY.

MISCELLANEOUS REPORTS.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1897.

Law Library
9/23/36

REPORT

OF THE

SECRETARY OF THE NAVY.

NAVY DEPARTMENT,
Washington, D. C., November 15, 1897.

To the PRESIDENT:

The present effective fighting force of the Navy consists of 4 battle ships of the first class, 2 battle ships of the second class, 2 armored cruisers, 16 cruisers, 15 gunboats, 6 double-turreted monitors, 1 ram, 1 dynamite gunboat, 1 dispatch boat, 1 transport steamer, and 5 torpedo boats. There are under construction 5 battle ships of the first class, 16 torpedo boats, and 1 submarine boat.

There are 64 other naval vessels, including those used as training, receiving, and naval-reserve ships, tugs, disused single-turreted monitors, and some unserviceable craft.

There is, further, the auxiliary fleet. This consists, first, of more than 20 subsidized steamers which comply with the requirements of the postal act of March 3, 1891, with regard to their adaptability to naval service, and to an armament of main and secondary batteries; second, of a very much greater number of large merchant marine steamers, which can be availed of at any time of need.

These auxiliaries, ranging from 2,000 to 12,000 tons, will, if occasion require, form a powerful fleet of ocean cruisers, capable of swift and formidable attack upon an enemy's commerce. Their great coal capacity will also enable them to remain a long time at sea in search of the whereabouts of hostile vessels.

The country is to be congratulated upon the results obtained in the rebuilding of the Navy. While its ships are not as many—and it is not necessary they should be—as those of some other great powers, they are, class for class, in power, speed, workmanship, and offensive and defensive qualities, the equal of vessels built anywhere else in the world.

Since the last annual report of the Secretary of the Navy was submitted, the following vessels have been conditionally or finally accepted, and are now a part of the effective force of the Navy:

Name of vessel.	Type.	Speed required by contract.	Speed obtained on trial.	Date of preliminary acceptance.	Date of final acceptance.	Date of commission.	By whom built.
		Knots.	*Knots.*				
Oregon	Seagoing battle ship.	15	16.78	June 26, 1896	Dec. 31, 1896	July 15, 1896	Union Iron Works.
Brooklyn	Armored cruiser.	20	21.91	Sept. 28, 1896	May 6, 1896	Dec. 1, 1896	Wm. Cramp & Sons.
Wilmington	Gunboat	13	15.08	May 17, 1897	Sept. 25, 1897	May 13, 1897	Newport News Co.
Helena	do	13	15.50	May 24, 1897	Oct. 8, 1897	July 8, 1897	Do.
Annapolis	do	12	13.17	May 19, 1897	Sept. 21, 1897	July 20, 1897	Lewis Nixon
Iowa	Seagoing battle ship.	16	17.09	June 22, 1897		June 16, 1897	Wm. Cramp & Sons.
Nashville	Gunboat	14	16.30	June 25, 1897		Aug. 19, 1897	Newport News Co.
Vicksburg	do	12	12.71	July 8, 1897		Oct. 23, 1897	Bath Iron Works.
Newport	do	12	12.29	do		Oct. 5, 1897	Do.
Wheeling	do	12	12.88	Aug. 6, 1897		Aug. 10, 1897	Union Iron Works.
Marietta	do	12	13.02	do		Sept. 1, 1897	Do.
Porter	Torpedo boat.	27½	28.63	Feb. 12, 1897	Aug. 12, 1897	Feb. 20, 1897	Herreshoff Mfg. Co.
Foote	do	24½	24.53	July 28, 1897		Aug. 7, 1897	Columbian Iron Works

The coast-defense monitor *Puritan* was completed at the navy-yard, New York, and placed in commission December 10, 1896.

The following table shows the condition of work on vessels now under construction, where building, percentage of completion November 15, 1897, and probable date of completion:

Name of vessel.	Type.	Where and by whom building.	Estimated percentage of completion Nov. 15.	Estimated date of completion.
Kearsarge	First-class battle ship.	Newport News S. and D. D. Co., Newport News, Va.	48	Aug., 1899.
Kentucky	do	do	47	Do.
Illinois [a]	do	do	30	Sept., 1899.
Alabama [a]	do	Wm. Cramp & Sons, Philadelphia, Pa.	31	Do.
Wisconsin [a]	do	Union Iron Works, San Francisco, Cal.	24	Sept., 1899.
Princeton	Gunboat	J. H. Dialogue & Son, Camden, N. J.	94	Feb., 1898.

[a] The probable date of final completion of the *Illinois*, *Alabama*, and *Wisconsin* is based on the supposition that armor will be provided in due season.

Name of vessel.	Type.	Where and by whom building.	Estimated percentage of completion Nov. 15.	Estimated date of completion.
Rodgers	Torpedo boat	Columbian Iron Works, Baltimore, Md.	85	May, 1898.
Winslow	do	do	96	Dec., 1897.
Rowan	do	Moran Bros. Co., Seattle, Wash.	88	Feb., 1898.
Dahlgren	do	Bath Iron Works, Bath, Me.	12	Aug., 1898.
T. A. M. Craven	do	do	12	Do.
Farragut	do	Union Iron Works, San Francisco, Cal.	14	July, 1898.
Davis	do	Wolff & Zwicker Iron Works, Portland, Oreg.	65	Mar., 1898.
Fox	do	do	54	Apr., 1898.
Morris	do	Herreshoff Manufacturing Co., Bristol, R. I.	Begun.	July, 1898.
Talbot	do	do	56	Mar., 1898.
Gwin	do	do	56	Do.
Mackenzie	do	The Chas. Hillman S. & E. B. Co., Philadelphia, Pa.	68	Feb., 1898.
McKee	do	Columbian Iron Works, Baltimore, Md.	30	Apr., 1898.
Stringham	do	Harlan & Hollingsworth Co., Wilmington, Del.	Begun	Jan., 1899.
Goldsborough	do	Wolff & Zwicker Iron Works, Portland, Oreg.	do	Do.
Bailey	do	Gas Engine and Power Co., and Chas. L. Seabury Co., Consolidated, Morris Heights, New York City.	do	Do.
Plunger	Submarine torpedo boat.	Columbian Iron Works, Baltimore, Md.	65	May, 1899.

The vessels under construction should be completed during the coming year, except the 5 battle ships which will probably not be ready for service before the latter part of 1899. Of the latter the *Kearsarge* and *Kentucky* are nearly half completed. About three-quarters of their armor has been delivered, a part of which has been secured in place on the ships. The other three, the *Alabama*, *Illinois*, and *Wisconsin*, were begun subsequent to the last annual report. With the exception of a small amount of diagonal casemate armor, which the ship contractors have agreed to furnish at the price fixed by law, it will be necessary to preliminarily accept them without armor, in accordance with the terms of the contract for their construction.

The ships are so designed, however, and the contract so drawn that this can be done without much other embarrassment to the Government than the delay in their final completion. But this, of course, is a great embarrassment, practically making these vessels useless meantime to the Navy. To prevent this, provision should at once be made for obtaining the armor necessary to their completion. In this connection it may be said that Congress at its last session appropriated a sum of money for the armor for the battle ships *Alabama*, *Illinois*, and *Wisconsin*, but provided that the price should not exceed an average of $300 per ton. In response to advertisements, the two companies which now manufacture such armor replied that they were unable to furnish it at that price. As a result, the final completion of these vessels will be delayed.

In compliance with the direction of Congress, that plans and estimates for the establishment of an armor plant be prepared, the Department appointed an armor-factory board, composed of officers selected with especial regard to their fitness for this duty. They have made a careful investigation of the problems presented, and have visited some of the principal steel and iron manufacturing points in the country. The result will be transmitted to Congress in a special report.

Work on the torpedo boats has not proceeded as rapidly, on the whole, as the terms of the contracts made by my predecessor require. The number of these boats contracted for in the last two years has induced some contractors to enter into competition for their construction who were without previous experience in such work, but no reason appears for doubting that the contracts will be fulfilled in every respect except that of time.

GUNBOATS.

An important addition of light-draft and composite gunboats to the effective force of the Navy has been made since the last annual report. At the present time the three light-draft gunboats built at Newport News are in active service, as are all the composite gunboats except the *Princeton*, which will probably be completed in February. These vessels are a valuable and necessary force, and will be especially effective in maintaining our interests in foreign waters, especially in times of civil disturbance. The first cost of all these gunboats was low, aggregating about $2,000,000 for the nine, or not more than the cost of a single first-class armored cruiser. The cost of their maintenance also, particularly in the case of the composite vessels, should not be excessive, and the reports of their trials, as well as the opinion of officers in command of them, have been distinctly favorable.

The composite gunboats are the first which have been designed and completed under the provisions of the general order placing the responsibility for design, structural strength, and stability, including the resultant effect of all changes made after the approval of designs, upon the Bureau of Construction and Repair. My predecessor, in his last annual report, commented on the improved stat[illegible]airs resulting from this order, and the desirabi[illegible]trict ad[illegible] it is now still more apparent.

CONTRACT[illegible]SEL

The act making appropriat[illegible] the fi[illegible]
year ending June 30 [illegible]
than 3 torpedo boat[illegible]

exceeding $800,000; of 1 practice vessel for the Naval Academy, to be propelled by steam and sail, at a cost, including outfit, of $250,000; and of 2 tugs, one for the naval station, Port Royal, S. C., and the other for the Puget Sound Naval Station, at a cost of $50,000 each.

Bids for the torpedo boats were from 16 firms, covering a variety of designs. This large number of competitors is a gratifying evidence of the growth of our ship-building plants; and the experience gained in naval building by these new contractors can not fail to prove a source of strength to the Navy.

The contracts for these 30-knot boats were awarded to the lowest bidders who complied with the requirements, as follows:

To Harlan & Hollingsworth: One 340-ton boat, at	$236,000
To Gas Engine and Power Company and Chas. L. Seabury Co., Consolidated: One 235-ton boat, at	210,000
To Wolff & Zwicker Iron Works: One 247.5-ton boat, at	214,500

The original appropriation for the training vessel for the Naval Academy was for the building of one composite vessel, propelled by steam and sail, at a cost, including outfit, of $250,000. The deficiency act of July 19, 1897, struck out the provision for propulsion by steam, and reduced the appropriation to $125,000, which is inadequate for the construction of a suitable practice ship.

The Department is constructing the two steam tugs, one at the New York Navy-Yard and the other at the Mare Island Navy-Yard.

CARE AND MAINTENANCE OF THE FLEET.

The report of the Chief Constructor gives in detail the work of the past year in connection with the repair and preservation of vessels. It there appears that, as for several years past, the appropriation has not been enough, and a large portion of authorized work was therefore necessarily suspended during the latter part of the fiscal year. This has caused an immediate drain upon the funds for the present year, which probably will likewise be prematurely exhausted. The Department is making special effort to keep down the requests for and the estimates and cost of repairs.

It is impossible, however, to hold these expenses at what they would be if done under the competition and under the longer hours and more favorable conditions of private establishments, and the Chief Constructor, in his estimates for the ensuing year, is justified in asking for a larger appropriation under this head, especially as the constant additions to the number of vessels in the service necessarily involves increased expenditures for care and maintenance.

PRESERVATION OF TORPEDO BOATS.

The fleet of torpedo boats available for active service is rapidly increasing. Some provision must be made for their stowage and preservation, as they are subject to rapid deterioration. Only a limited number, sufficient to provide proper training for officers and men, should be kept in the water in active service. The remainder should be kept in good condition, out of the water and under cover, ready for instant service. Plans have been prepared under the Bureau of Construction and Repair with a view to providing stowage for these boats at the several navy-yards, together with convenient appliances for hauling them out of the water. Some arrangement should be put into execution at an early date, as the expense attached to placing these small boats in dry docks, as compared with hauling them out on ways specially provided for the purpose, is disproportionately large.

VESSELS IN RESERVE.

The Department has during the past year adopted the practice of placing in reserve such vessels as it deems advisable for any reason not to retain in active commission. Some such system is necessary to at once avoid the great cost of keeping too many vessels in active service and yet keeping enough ready for action at short notice. The limited number of officers and men is also an important consideration.

In pursuance of this policy, the *Columbia* and the *Minneapolis* have been placed in reserve, and it is the intention of the Department to make additions to the reserve fleet, as circumstances permit. These two vessels are under command of one captain, and there is attached to them only a sufficient number of officers and men to look after them. Their stores are kept in storehouses convenient, the machinery taken care of, and arrangements made to put them in service in a few days.

SHIPS IN COMMISSION.

The North Atlantic Squadron, under command of Rear-Admiral Bunce until May 1, 1897, and since then under Rear-Admiral Sicard, has had during the past year the benefits which result from exercises in drill and fleet maneuvers. This squadron is composed of the *New York* (first rate), flagship; *Massachusetts* (first rate), *Puritan* (first rate), *Indiana* (first rate), *Iowa* (first rate), *Texas* (first rate), *Maine* (first rate), *Brooklyn* (first rate), *Terror* (second rate), *Montgomery* (second rate), *Marblehead* (third rate), *Wilmington* (third rate), *Detroit* (third rate), *Annapolis* (third rate), *Nashville* (third rate), *Fern* (fourth rate), *Vesuvius* (fourth rate).

Embracing three battle ships of the first class, two of the second, and some of our best cruisers, it makes the most formidable fleet assembled since the civil war. The Department has been able during the past year, for the first time, to exercise battle ships as a squadron. This fleet visited Charleston during February, and was exercised in a blockade of that port. The value of exercises of this kind to the fleet can not be overestimated, and it is the intention of the Department to utilize the North Atlantic Squadron as far as possible in drills and maneuvers, from the results of which data can be obtained as to the most effective method of using the fleet in time of war.

The smaller ships of the squadron have been assigned in turn to active duty in connection with enforcing neutrality laws on the Gulf coast and the coast of Georgia, Florida, and the Carolinas. The work has been done with great vigilance and to the credit of the commanding officers.

The Pacific Squadron, Rear-Admiral Miller commanding, consists of the *Oregon* (first rate), *Philadelphia* (second rate, flagship), *Monterey* (second rate), *Monadnock* (second rate), *Bennington* (third rate), *Wheeling* (third rate), *Alert* (third rate), and *Marietta* (third rate).

The Asiatic Squadron, Rear-Admiral McNair commanding, consists of the *Olympia* (first rate), flagship; *Boston* (second rate), *Yorktown* (third rate), *Monocacy* (third rate), *Machias* (third rate), *Petrel* (fourth rate). The *Concord* (third rate) and the *Helena* (third rate) have been ordered to join it. These vessels have been cruising on the coast of Asia wherever it was deemed advisable to show our flag or look after American interests; and during the summer all the ships, except the *Monocacy*, rendezvoused at Chefoo.

The European squadron, Rear-Admiral Selfridge commanding, comprises the *San Francisco* (second rate), flagship; *Raleigh* (second rate), and *Bancroft* (fourth rate), and during the greater part of the past year has been engaged in protecting American interests in the eastern part of the Mediterranean, where the unsettled condition of affairs, which finally resulted in the war between Turkey and Greece, made the presence of the fleet desirable.

The South Atlantic squadron, Captain Chester commanding, consists of the *Cincinnati* (second rate) and the *Castine* (third rate).

In addition to the vessels in the squadrons there are the following: Apprentice training ships *Essex* (third rate), *Adams* (third rate), *Alliance* (third rate); the gunnery school ship *Amphitrite*; the cadet practice ship *Standish*; the first-class cruisers *Columbia* and *Minneapolis* in reserve; the *Dolphin* (third rate), and *Vicksburg* (third rate), unassigned; the *Newport* (third rate), on special duty, and torpedo boats *Porter*, *Du Pont*, *Cushing*, and *Ericsson* on special service.

The newly completed flagship *Brooklyn* was present at the jubilee commemorating the sixtieth anniversary of the coronation of Queen Victoria, and, with its officers, was cordially received as representing there our naval establishment and our national interest in the occasion.

ELECTRICITY FOR AUXILIARY PURPOSES.

Under the administration of my predecessor it was ordered that two of the 8-inch turrets of the *Brooklyn* should be operated by steam and the other two by electricity, the latter method of turning turrets being at that time experimental. Under date of March 3, 1896, however, the electrical turret-turning machinery of the *Brooklyn* having been tried to some extent and found to operate successfully, it was further ordered by Secretary Herbert that there be installed on the battleships *Kearsarge* and *Kentucky* central electrical power plants, and that electricity be substituted for steam and hydraulic power as a motive force for turning the turrets, driving the ammunition hoists, and all auxiliary apparatus, excepting the windlass and steering gear, the plants so installed to furnish also the power for lighting the vessels.

The 8-inch turrets of the *Brooklyn*, which are operated by electricity, have since been further tested with marked success, and I have deemed it proper, therefore, to substitute electricity for hydraulic power on board the battle ships *Illinois* and *Alabama.* This installation is to be additional to the electrical plant required by the specifications for those vessels to light the ship, and to be sufficient to perform the work required by the hydraulic plant provided for in the specifications.

The change in the two vessels last named, however, applies only to the revolving of the turrets, raising and depressing the guns, and the hoisting of ammunition, and not to the driving of auxiliaries, which, being of less importance than the quick and accurate pointing of the guns and the supplying of ammunition, has been omitted in order to avoid increased expense and because steam power is sufficient for such auxiliary purposes.

THE CONSTITUTION.

In compliance with the request of the civil authorities in Massachusetts, the Department ordered the frigate *Constitution* towed to Boston, to participate in the celebration of the one hundredth anniversary of her launching on the 21st of October, 1797. The widespread interest in this anniversary and the patriotic sentiment to which it gave rise throughout the country found fitting expression in the ceremonies consummated that day by the city of Boston in honor of this most gallant of the historic ships of the Navy.

In view of the affection with which the people regard the *Constitution*, the Department believes that it should be preserved and handed down to future generations. It is therefore suggested that a sufficient appropriation be made to fit it for use as a training ship. This would prevent it from passing off the list of the Navy and would keep alive the patriotic sentiment of which the old frigate has always been an inspiration.

PROGRESS OF NAVAL CONSTRUCTION ABROAD.

It is of interest to note the naval programmes of the principal foreign powers which show the great activity prevailing among them in the matter of naval construction.

England leads. Her naval appropriations for the year 1897–98 for this purpose amount, in round numbers, to $26,500,000. The programme embraces—

4 battle ships,
4 armored cruisers,
3 third-class cruisers,
6 light-draft gunboats,
6 torpedo-boat destroyers,
1 new royal yacht.

Including new work she will complete or have under construction during the year—

15 battle ships,
12 first-class cruisers,
9 second-class cruisers,
10 third-class cruisers,
6 twin-screw gunboats,
56 torpedo-boat destroyers,
8 light-draft steamers,
1 royal yacht.

The total number of her vessels of all classes under construction during the year amount to 117, with an aggregate displacement of about 446,000 tons, and with an aggregate indicated horsepower of about 935,000. It is anticipated that during the next fiscal year 66 of these vessels will be completed for service, including 50 torpedo-boat destroyers.

Naval construction in France is also large. The minister of marine has been authorized to commence—

2 armored cruisers of 9,500 tons displacement;
2 armored cruisers of 7,500 tons displacement;
4 torpedo-boat destroyers of 300 tons displacement;
9 first-class torpedo boats of 85 tons displacement—

a total of 17 vessels, at a cost of $16,194,720.

In addition to these there will be under construction during the year 1897-98—

7 battle ships,
4 armored cruisers,
10 protected cruisers,
6 gunboats,
5 torpedo-boat destroyers,
19 torpedo boats, and
1 submarine boat—

a total of 69 vessels of all descriptions.

Japan comes next, leading Russia, Italy, Germany, and Spain. There are now under construction in Europe and the United States for the Japanese Government—

3 battle ships of 14,800 tons displacement, one at Thames Iron Works, one at Thomson's, Clydebank, one at Armstrong's,
1 battle ship of 10,000 tons displacement reported as ordered of Armstrong, but contract not signed and specifications not completed,
4 first-class armored cruisers of 9,600 tons displacement (two at Armstrong's, one at Vulcan Works, Stettin, one at Forges et Chantiers, France),
4 protected cruisers (two in the United States of about 4,760 tons displacement and two at Armstrong's of 4,500 tons displacement),
1 protected cruiser of 2,800 tons and
1 of 1,800 tons, at the Government yard at Yokosuka, Japan,
9 torpedo-boat destroyers (four by Yarrow, four by Thornycroft, and one by Schichau, at Elbing, Germany; eight of about 300 tons displacement, one somewhat smaller),
13 torpedo boats of about 85 to 90 tons displacement (eight by Schichau and five by Normand).

Germany is expending $9,000,000 during the year 1897–98 for vessels under construction, and the following are authorized—

1 battle ship,
2 gunboats.

The vessels under construction embrace—

2 first-class battle ships,
1 armored cruiser,
5 protected cruisers,
1 torpedo-boat destroyer,
8 torpedo boats.

Russia is expending $7,668,277 for new construction. It is proposed to build—

3 battle ships,
1 coast defense vessel,
1 armored cruiser,
1 protected cruiser,
1 torpedo dispatch vessel,
12 torpedo-boat destroyers.

In addition there are under construction—

6 battle ships,
1 coast defense vessel,
1 armored cruiser,
3 protected cruisers,
4 gunboats,
17 torpedo boats.

The Italian estimates for new construction for 1897–98 are about $5,000,000. It is proposed to build—

3 battle ships,
1 armored cruiser,
Several torpedo-boat destroyers.

At present there are under construction—

2 battle ships,
4 armored cruisers,
1 protected cruiser,
2 torpedo cruisers,
13 torpedo boats.

Spain increased her naval power during the past year by the purchase of—

1 armored cruiser, and the completion of—
2 first-class armored cruisers,
1 protected cruiser,
2 gunboats, and
6 torpedo-boat destroyers (purchased in England).

There are now under construction for the Spanish Government—

4 armored cruisers,
4 protected cruisers,
4 gunboats,
4 torpedo boats, and
3 battle ships, to be fitted with new boilers and guns in France.

The most striking feature of naval progress abroad is that of the Japanese Government. She already ranks next to England and France in the extent of her naval building. She has added during the past year to her fleet two first-class battle ships, built in England, and her programme for the future will render her by the year 1902 the strongest naval power in the Pacific Ocean.

BUREAU OF YARDS AND DOCKS.

It appears from the report of the Bureau of Yards and Docks that to-day the most urgent need of the naval service is an increase of docking facilities. Of the eleven Government docks—nine on the Atlantic and two on the Pacific Coast—three were designed to accommodate battle ships of the first class, one at New York, one at Port Royal, S. C., and one at Bremerton, Wash., on Puget Sound. But the dock at New York has been for six months, and is likely for three months more to be undergoing repairs, and at the dock at Port Royal there is not only an insufficiency of water, but the cross-section of the dock is too small to safely admit battle ships with bilge keels affixed. A modern ship should be docked every few months, and owing to the above condition of the docks on this coast it was necessary to send the *Indiana* to Halifax in August last for this purpose.

On the Pacific Coast there is but one dock of sufficient size to dock a modern battle ship. This is on Puget Sound, 900 miles from San Francisco. Access to it is through a narrow channel 20 miles wide, one side of which is in possession of a foreign country.

This lack of docking facilities should be remedied at the earliest possible moment. The necessity is imperative. The Department, therefore, appointed in August last a special board to examine the matter, and the valuable report made by it will be forwarded to Congress as soon as it meets.

This board reports that timber docks, although less expensive than stone or concrete, are not durable.

A plan for the location of additional Government docks, recommended by this board as a result of its investigations, is comprehensive and should be substantially carried out. When completed, it will give the necessary facilities demanded by the extensive coast line of our country.

There are seven strategic divisions of our coast: First, from the Bay of Fundy to Cape Cod; second, from Cape Cod to Sandy Hook; third, from Sandy Hook to Cape Henry; fourth, from Cape Henry to Cape Sable; fifth, the coast line bordering on the Gulf of Mexico; sixth, the southern portion of the Pacific coast, and seventh, the northern portion. There should be docks and repair shops in each division, and these should be placed, as far as possible, at great commercial and industrial centers, not only because workmen and material can be obtained more readily and more reasonably at such points, but also because such points require and will have, from their importance to the country, a strong land defense; and, as the docks also require a strong defense, one set of fortifications will cover both civil and military property. In the great commercial centers also, from which ply large trans-ocean steamers, the Government will be able to derive some revenue from accommodating them in its docks.

The board in its summary recommends as sites for "docks urgently necessary" Boston, New York, Norfolk, Port Royal, New Orleans, and Mare Island. The ground on which they proceeded in this recommendation appears in the following quotation from their report:

> Acts of Congress have repeatedly required that navy-yards, and dry docks, their most essential and costly structures, shall be located with due regard to the commercial as well as the naval interests, and commissions have been from time to time appointed to select such sites. The reports of these commissions have furnished the

board valuable information in the discharge of its duties. In its instructions to these commissions the Navy Department has formulated the special requirements of a site for a navy-yard to be—

1. A situation upon a good harbor of sufficient size, depth, and accessibility for vessels of the largest size and heaviest draft.
2. A favorable position with respect to the principal lines of defense.
3. A local security from water attack due to position and natural surroundings.
4. Ample water frontage of sufficient depth and permanence, and with currents of moderate rapidity.
5. A favorable position with respect to the lines of interior communication (by rail or otherwise) with the principal sources of supply.
6. That the character of the ground shall be suitable for the construction of excavated docks and basins and for heavy structures.
7. Proximity to centers of labor and supplies of material.
8. Healthiness of the climate and its suitability for outdoor labor.
9. The existence in the vicinity of an ample supply of good potable water.

Upon careful consideration of the report and the supplementary report of the board, and of the whole subject-matter, the Department recommends that action be taken by initial appropriations—at a total ultimate cost for the several improvements recommended less than that of one additional first-class battle ship, which is now of less importance than additional docks—to start at once the following works:

That a dock be constructed at Boston, as recommended by the board, adapted to the docking of the largest ocean-going vessels. As the New England coast is our first exposure to European attack, there should certainly be such a dock upon it; and this site is the one which meets all the requisites above quoted as essential or desirable, and which would be a source of considerable revenue to the Government from its commercial use. It is the center of the largest commercial and industrial activities in New England, is in the most favorable relation to coast defense, is close to a large body of mechanics of high skill and experience, and a new dock there has been repeatedly recommended in past years by the Bureau of Yards and Docks and other naval authorities. The only dock now there is a small and insufficient one of stone laid over sixty years ago;—

That while, on account of its lack of some of the enumerated requistes, the board does not include Portsmouth, N. H., in its list of recommendations, yet in view of the fact that its otherwise well-equipped yard has no dock at all, except a worn-out floating wooden dock built in 1851, so far worthless that its lifting capacity is reported to be only 1,500 tons, a dock should be built there commensurate with the use of the yard. If there is a navy-yard, there should be a dock;—

That at New York, as soon as timber dock No. 3, which is now under repair, is ready for use, probably some time in March next, so that timber dock No. 2 can be spared, the latter, which is now deteriorating, be fitted with a concrete entrance and widened sufficiently to accommodate our largest battle ships;—

That the present timber dock at League Island, completed only six years ago, which is of sufficient length (500 feet), but too narrow for naval vessels of the largest size, be widened and provided with a concrete entrance, so as to meet the requirements of a first-class dock. To further increase the utility of that yard some of its important work-buildings, which are in a wretched condition, should be replaced with suitable structures. The reserve basin there is peculiarly well adapted for the purpose for which it is intended. When the work of excavation, which has been authorized and is in active progress, is completed it will afford an ample and unusually suitable fresh-water basin capable of holding the entire Navy. The policy of putting ships, not needed for immediate use, out of commission will gradually increase the number in reserve, among which may be vessels of the largest size, and steps should be taken at once to have close at hand a dock sufficiently large to accommodate them in case of needed overhauling, painting, or ordinary repairs;—

That at Norfolk the short dock be lengthened 150 feet, as recommended by the board, which will enable it to accommodate all except the very largest ships. In the near future, unless the suggestion below of the Newport News Ship Building and Dry Dock Company be adopted, the long dock there should also be widened and fitted with a concrete entrance, in which case it will be large enough for our largest ships;—

That at Port Royal, as recommended by the board, a proper wharf be constructed adjoining the dock;—

That at Algiers, New Orleans, a steel floating dock, with necessary wharf and moorings be constructed; and

That at Mare Island the new first-class dock recommended by the board be provided as soon as the depth of water, which is now only 20 feet, shall be increased, as it ought to be, to the proper extent.

In this connection it should be said that at Newport News are all the requisites for a dock of the largest size. There is no lack of water, as in the approaches to Norfolk. The Newport News Ship Building and Dry Dock Company have suggested their willingness to construct a dock of the very largest capacity, and to be governed by the Department as to its construction, size, materials, and character, beginning the work at once and completing it in a year, provided it can be assured of some agreement for its use by the Government.

Also the International Dry Dock and Construction Company of New York—and it is claimed that the nature of the soil at the navy-yard there is not well adapted to the maintenance of a dock for vessels of great weight—propose to construct and also maintain a steel floating dry dock of the pattern recommended by the board, 550 feet long, of over 15,000 tons capacity, costing, they estimate, a million and a half dollars, and to complete the same ready for service in nine months, if insured by the Government 6 per cent interest on the amount invested for twenty years. For this remuneration they propose, in addition, to allow the use of the dock for one hundred days each year, and at their own expense to dock and discharge vessels of the Government within that time. Their proposal includes the free use and possession of the dock by the United States for one hundred days each year in peac and its entire use in war on terms to be mutually agreed upon, or, failing that, to be fixed by arbitration.

The propositions of these two companies are submitted for consideration, as they offer the Government an opportunity to enter upon the plan of constructing docks in cooperation with private establishments, if Congress shall deem such a course desirable.

It is possible that the same thing can be done at San Francisco, where the low water at Mare Island is a present embarrassment in the way of constructing at the navy-yard there a dock of sufficient size for our largest vessel.

FOREIGN DOCKING FACILITIES.

A comparison of the docking facilities of the principal maritime powers is instructive in this connection.

Great Britain has 611 docks, 28 of which accommodate first-class battle ships. Fourteen first-class battle ships can be docked at one time in the two yards of Chatham and Portsmouth alone.

France has 76 docks, 22 of which belonging to the Government and 7 to private companies can accommodate battle ships.

Germany has 70 docks, 2 of which belong to private companies and are capable of docking the largest battle ships.

Spain has 19 docks, only 1 of which is capable of docking the largest battle ships.

Italy has a total of 20 docks, 7 of which can accommodate battle ships.

Russia has 6 docks capable of accommodating battle ships.

Austria has 2 docks capable of accommodating battle ships.

China has 23 docks, 1 of which, at Port Arthur, is capable of accommodating battle ships.

Japan has 6 docks capable of accommodating battle ships, 2 of them belonging to private companies.

REPAIRS ON DRY DOCK NO. 3 AT THE NEW YORK NAVY-YARD.

Leaks appeared on the north side of this dock near its entrance in May last. They rapidly increased, flowing in in cascades for a length of 400 feet. Leaks soon appeared on the south side of the dock. A board of civil engineers was appointed to submit plans and estimates for repairs. It reported that an injury had occurred to the table-end sheet piling outside of the caisson and "that the rupture and breakage of the table-end sheet piling must have been caused by the dredging machine when the entrance way to the dock was dredged out in preparation for docking ships."

The Bureau of Yards and Docks r[illegible]ommen[illegible] a co[illegible]d[illegible], to secure
complete and substantial repairs, a[illegible] 00,000 for
the total cost of cofferdam and re[illegible]ed
to be done according to the pl[illegible] It [illegible]
necessary to have the timber [illegible]al
dimensions, specially

voidable delay has been experienced in securing its delivery, but the cofferdam is practically completed, and work begun on the filling of the interior and of the embankments.

The constructor in charge states that the cost of the cofferdam has exceeded the original estimate, which also included the cost of its removal, but that, in his opinion, the balance remaining will, unless some unforeseen contingency occurs, be sufficient to effect the necessary repairs. He further states that after these repairs are completed the cost of removing the cofferdam and making good the quay walls and entrances to the dry dock will be $20,000, and therefore recommends:

> That there should be an additional appropriation of $25,000, made for the completion of repairs to Dry Dock No. 3, and in view of the risky character of this work and the unforeseen difficulties which may be encountered at any moment due to the unusual tides, or leaks due to the treacherous nature of the soil or other accidents, that an additional contingent appropriation of at least equal amount should be made available for the purpose, as in such work as this it is practically impossible to estimate, even roughly, upon the cost of work which may be necessary.

NAVY-YARDS AND PLANTS.

A reference to the report of the Chief of the Bureau of Yards and Docks shows that the needs of the navy-yards for improvements to their plants are great, as are necessarily the estimates which he submits.

Secretary Tracy, in his report for 1891, made the following statement:

> In view of the heavy expenditures made necessary at the present time by the large tonnage, and especially by the large armored tonnage of vessels which it has fallen upon this Administration to construct, the Department has been unwilling to recommend an immediate appropriation for the improvement of the navy-yard plants for the purposes mentioned in the accompanying reports of the different Bureaus. These improvements will, however, be urgently needed when the new steel fleet now building has been for a time in commission, or if, in the meanwhile, the country should suddenly be called upon to put forth its naval strength.

Well-equipped repair shops are essential if we would keep the cost of repairs at a reasonable sum. The estimates for improvements submitted by the commandants of the navy-yards to the Chief of the Bureau of Yards and Docks amount to more than $8,000,000. While the appropriation of such an amount can not be expected, these recommendations are evidence that the actual needs are very large.

For the coming fiscal year the Bureau of Construction and Repair asks for improvements and repairs to the navy-yards at Portsmouth, Boston, New York, League Island, Norfolk, Mare Island, and Puget Sound to the extent of $50,000 each;—

The Bureau of Steam Engineering as follows: Boston, $15,000; Norfolk, $35,000; Naval Station, Key West, $30,000; Naval Station, Puget Sound, $50,000;—

The Bureau of Yards and Docks as follows: Boston, $15,400; New York, 48,637; League Island, $291,500; Washington, $76,347; Nor-f, 46,000; Mare Island, $232,571; Port Royal, $65,000; Puget l, 49,432. Also for housing torpedo vessels at such navy-yards and stations as may be selected, $225,000; for coaling wharf at Japonski Island, Alaska, $5,000; and for repairs and preservation of navy-yards, $400,000.

CENTRAL POWER PLANTS AT NAVY-YARDS.

Attention is invited to the desirability of concentrating the plants for supplying power at navy-yards. At present such power is supplied from a number of boilers and engines located at different points in the yards and operated under separate bureaus. This is attended with great waste of labor, fuel, and power, and an increase in cost of operation and repair. A central boiler plant, with engines and dynamos, should be established in each yard and electrical power distributed to the shops of the different bureaus. The use of electrical power for the purpose of driving machinery is increasing, and in a number of large private establishments, such as the Baldwin Locomotive Works, all the machinery to-day is driven by electricity.

At present each department has one or more boiler plants with its own engine—frequently of an old type. This necessitates the employment of separate gangs of men for each plant and results in large steam consumption for the amount of power realized. In addition, long lines of shafting are run continuously, whether the number of men employed is large or small. The driving of these lines of shafting comsumes from 25 to 50 per cent of the power generated and frequently constitutes the greater part of the load on the engines. In the case of the electrical distribution of power the percentage of waste load remains a nearly fixed percentage of the power utilized.

The Department has under consideration, in the interest of economy and efficiency, the substitution of electrical power for the present methods, the change to be made gradually and extended from time to time.

CIVILIAN EMPLOYEES.

Of the complaints which have come to the Department, charging favoritism in the employment, promotion, reduction, dismissal, or grading of employees at navy-yards, hardly one has proved to be well-grounded, although careful and extended investigation has been had, the complainants in some cases being represented by counsel. This demonstrates, as well perhaps as anything could, the merit of the present system. It always happens when discharges are made, which must often occur on account of the falling off of work, that with the utmost care, which is especially insisted upon, on the part of the officials to retain only the most competent, those who go claim that they should have been retained and somebody else discharged. Prior to May 26 last, when additional employees were needed at navy-yards, the order of certification of all applicants on the eligible register of the labor boards was as follows:

First, veterans; second, those not veterans who were previously employed in navy-yards, and who, when last discharged, had their workmanship marked "excellent" and their conduct not less than "good;" third, all others on the register in the order of registration.

Pursuing the policy of the Administration to treat soldiers and sailors liberally, an order was issued providing that all persons who served in the military or naval services of the United States during the late war of the rebellion, and who were honorably discharged therefrom, although not veterans in the highest sense of merit and service, shall be given preference next after such veterans; and that, third, those who served in the Navy or Marine Corps since the late civil war for a period of twelve years, and who were honorably discharged therefrom, shall be third in the order of preference when the force at navy-yards is increased. Fourth in order come those who prior to this order received preference next after veterans; and, fifth, all others on the eligible list in the order of their registration.

Previous to May 23, 1897, workmen who were absent for three successive days without permission, unless by reason of illness, were discharged and prohibited from registration for six months. This rule was changed by allowing employees discharged for this cause, whose general workmanship was marked "excellent" and whose conduct was marked not less than "good," to register immediately upon application, if the labor board, on investigation of the circumstances, deem the case worthy.

The rules prior to September 11 provided that minors under instruction in the Ordnance Department of the Washington Navy-Yard should be appointed after passing a satisfactory physical and mental examination. The pressure for these small places was so great that this method became impracticable. At present all applicants are required to register with the board of labor employment, and are examined as to their qualifications for appointment in the order of registration, as vacancies occur, two registered applicants being examined for each vacancy, and the one passing the best examination selected.

All clerks, draftsmen, watchmen, and messengers at navy-yards are now in the classified service, and are appointed, promoted, reduced, or dismissed, as the case may be, in accordance with the rules promulgated by the Civil Service Commission.

The Department, in pursuance of its order of March 26, 1897, receives semiannually—in January and July—the efficiency records of navy-yard employees who are in the classified service. These records are based upon the character, quality, and quantity of the work performed and habits of punctuality, conduct, and attendance, and they determine the relative efficiency of this class of employees. These reports, and the consequent action of the Department based upon them, have already proved of great value, and will, it is believed, result each succeeding year in a higher average standard of efficiency on the part of the classified employees.

Summary of labor board reports for the year ending August 31, 1897.

Navy-yards.	Number of applications for employment.	Rejected by the labor board as not eligible under the rules.	Called for by heads of labor departments.	Certified for employment to heads of labor departments.	Rejected by heads of departments as not qualified.	Declined service.	Failed to report for employment.
Portsmouth	437	1	310	305	2	0	35
Boston	1,726	2	372	354	....	......	48
New York	6,005	55	2,178	2,178	8	34	407
League Island	2,220	....	420	419	4	3	40
Washington	1,848	....	636	636	3	23	98
Norfolk	2,366	45	1,940	1,878	20	2	207
Mare Island	1,624	2	682	929	12	......	147
Total	16,226	105	6,538	6,699	49	62	982

ORDNANCE.

Progress has been made under the Bureau of Ordnance in arming our vessels in keeping with their increase in number. It appears from its report that all the guns, 547 in number, required for the main batteries of the modern ships of the Navy have been completed except those for the five battle ships now under construction, and for the *Hartford*. These guns, however, will be completed far in advance of the battle ships.

During the past year 88 guns of various calibers, from 4 to 13 inches for the main batteries of vessels, have been completed at the naval gun factory, and 169 are now in process of manufacture.

For secondary batteries for naval vessels the Department has ordered 963 guns. One hundred 3-inch field guns have been manufactured. The manufacture of 100 heavy 1-pounder automatic quick-firing guns has been undertaken. A number of 6-inch guns of ordinary type are under conversion into rapid-firing guns.

Contracts have been made during the past year for a quantity of common and armor-piercing shells for 1-pounder and 6-pounder guns, and for guns of from 4 to 13 inch caliber.

Ten thousand 6 mm. Lee straight pull rifles have been supplied, and nearly all the vessels in commission, except those on foreign stations, have been equipped with them.

Fifty automatic guns, firing small-arm ammunition, have been procured and are in process of issue to the service. Fifty more are in process of manufacture.

When the present contracts for topedoes are completed the Department will have on hand 309 Whitehead and 51 Howell torpedoes.

ARMOR.

During the past year the contract for armor for the *Iowa* was completed by the delivery of a balance of 265 tons.

Since October 1, 1896, 2,691 tons of armor for the *Kearsarge* and *Kentucky* have been delivered in instalments as required by contract. There remain yet to be delivered 2,876 tons. The total amount of armor delivered prior to October 1, 1896, was 19,283 tons, making the total amount of armor contracted for in this country since this industry was domesticated 25,115 tons.

RESERVE SUPPLY OF GUNS AND PROJECTILES.

Progress has also been made in obtaining a reserve supply of guns and projectiles for naval vessels and for auxiliary cruisers. At the present time 142 guns for this purpose are in process of manufacture, 12 of which are of large caliber, and 130 suitable for arming auxiliary cruisers. This number will be sufficient to arm only 21 vessels with 6 guns each. It is deemed desirable by the Department that this work should be steadily prosecuted, as in no other way or with so little expense can we add to our naval strength as by providing guns and ammunition for auxiliary cruisers. As these vessels are already built, they need only to be armed to make them effective additions to the Navy. The Department has therefore asked in its estimates for the coming year an additional appropriation for this purpose.

The board for the inspection of merchant vessels has scheduled 60 vessels, and recommends batteries as follows: Forty-six 6-inch, 205 5-inch, and 206 4-inch guns. There are now in process of manufacture 41 6-inch, 40 5-inch, and 49 4-inch guns, leaving to be provided 5 6-inch, 165 5-inch, and 157 4-inch guns.

SECONDARY BATTERIES.

Of the 963 guns required for the secondary batteries of the ships of the Navy, 865 have been completed. Two hundred are now in process of manufacture, which, when completed, will leave a surplus of 166 guns available for arming auxiliary vessels.

PROJECTILES.

The Department has recently acquired the right for using a soft steel cap on armor-piercing projectiles, which renders them much more effective, and which is to be fitted to all new shell.

Contracts for shell have been made during the past year as follows:

Secondary battery.

	1-pounder.	6-pounder.
Common	10,400	....
Armor-piercing	96,280	54,523

Main battery.

	4-inch.	5-inch.	6-inch.	8-inch.	10-inch.	12-inch.	13-inch.
Common	....	10,000	....	....	....	150	....
Armor-piercing	6,048	5,221	6,218	233	16	65	620

AMMUNITION.

The question of having always at hand a satisfactory source of supply for powder has received much consideration from the Bureau, and it suggests that in view of the lack of sufficient competition among private manufacturers the Government should establish and operate a factory of its own of moderate capacity. Estimates have been submitted for this purpose and also to provide for the purchase of a reserve supply of powder, which, though the expense is large, is absolutely essential if the Navy is to be maintained in an efficient fighting condition.

The cost of materials for a complete supply of ammunition to once refill all the vessels of the Navy, including the five unfinished battle ships, would be $6,521,985; not including them, $1,836,482 less.

The cost of ammunition for one battle ship of the *Kearsarge* class is $383,197.

NAVAL MAGAZINES.

The Department has been embarassed for several years for want of suitable magazines. During the past year new magazine buildings have been erected at Fort Mifflin, near Philadelphia, and on St. Julien's Creek, near Norfolk. Additional buildings are required at League Island, where, by reason of the laying up of vessels in reserve, extensive storage facilities are necessary for powder and projectiles.

After Ellis Island, New York, was given up for use as an immigrant station, the War Department permitted the temporary occupation of Fort Wadsworth for magazine purposes. Important improvements to the fortifications at that point rendered it necessary that another place should be found, and this Department was again obliged to call upon the War Department for permission to use Fort Lafayette, a dilapidated structure, as a naval magazine. It is important that authorization be given to purchase a suitable tract of land contiguous to the waters of New York where a magazine can be erected for our principal naval station, which is there.

BUREAU OF NAVIGATION.

Attention is invited to the recommendation of the Chief of the Bureau of Navigation for the construction of a stern-wheel b[illegible] of light draft for patrol service on the Yukon River. It [illegible] ly aid in securing a proper observance of [illegible] law in [illegible] propriation necessary for this purpose is estimated at $30,000, and as much more for the establishment of three small posts at different points on the river and for providing a proper outfit for the officers and men.

The efforts of the Department to Americanize the enlisted force of the Navy have been steadily pursued, and with this end in view temporary enlisting stations were established during the past summer in a number of the lake cities, and a number of excellent men enlisted. The Department intends to repeat this action in the Southern States, believing that similar enlistments can be secured on the Gulf Coast. The records of the Bureau show that of the 2,845 petty officers in general service June 30, 1897, 48 per cent were native born and 83 per cent were citizens of the United States; and of the 5,840 other men in general service 58 per cent were native born and 70 per cent were citizens of the United States. It should be said that of these petty officers and men a great number are of long seafaring experience and have excellent and deserving records.

NAVAL ACADEMY.

The Superintendent of the Naval Academy recommends, and the Board of Visitors concur with him, that the ultimate age of admission to the Academy be fixed at eighteen years, instead of twenty as at present, in order to insure a more uniform age of officers entering the service. Under the present system graduates are sometimes nearly 26 years of age at the time of leaving the Academy and are frequently outranked by those who are younger by four or five years. As a large percentage of those who fail at the Academy are over eighteen when they enter it, this change would tend to lessen the expense to which the Government is put in maintaining and educating them from one to six years, only to find that they ultimately fail to pass the required examinations.

Attention is invited to the unanimous resolution of the Board of Visitors to the Naval Academy, in which "the board calls attention to the obvious fact that the irregular method of constructing buildings upon the Academy grounds has been wasteful and unsatisfactory, and recommends that in future different construction obtain here, especially in conformity with the general plan previously adopted."

The condition of many of the buildings at the Academy is such as to make it desirable that Congress should consider the question of their reconstruction.

BUREAU OF EQUIPMENT.

The report of the Chief of the Bureau of Equipment for the fiscal year ending June 30, 1897, gives in detail the work done under it in the ropewalk, rolling mill, machine and forge shops, installing electric plants on board ship, expenditures for coal and hemp, and in the manufacture of cables, ropes, and other equipment articles.

The principal item of expenditure under the Bureau of Equipment is for coal. During the past fiscal year 138,318 tons of coal were purchased, at a cost of $655,921.72, an average of $4.75 per ton. For the fiscal year ending June 30, 1896, the purchase of coal amounted to 116,903 tons, at an average cost of $5.30 per ton.

Over 115,000 tons of coal were used by the new ships of the Navy, of which 45 per cent was for seagoing and 55 per cent for auxiliary purposes.

A homing-pigeon service has been established at Portsmouth, Newport, New York, Norfolk, Key West, and Mare Island, and in certain contingencies may be found of great value.

NAVAL OBSERVATORY.

At the Naval Observatory observations of the sun, moon, and planets have been had, and the observations of the zone of stars lying between 13° 50′ and 18° 10′ of south declination, for the great international catalogue of the German Astronomical Society, have been completed. The numerical reductions have fallen somewhat into arrears for want, it is claimed, of a sufficient computing force.

PROFESSORS OF MATHEMATICS.

The Department recommends that the statute authorizing the appointment of professors of mathematics be so amended that, without disturbing those who now hold the office, which would be unjust to them, no further appointments shall be made. The reason for the creation of the office has passed away. These professors were, at first, teachers of midshipmen on board ship, and were thus exposed to the dangers of service in war and at sea. They were therefore properly pensioned by a place upon the retired list. To-day their name is largely a misnomer. Under the law, one is assignable to the teaching of ethics and English studies, one of Spanish, and one of drawing. In fact, only one teaches mathematics at the Naval Academy; several of them are on duty at the Naval Observatory; two are librarians; one is engaged in ordnance work, and another in the Bureau of Yards and Docks. They have no service at sea, and there is no more reason why hereafter the retired list should be open to a new appointee to the work now done by this corps than to any other employee in civil life.

If this recommendation is adopted by Congress, it will be necessary to provide for the appointment of astronomers at the Naval Observatory, to take the places as they shall become vacant of existing professors of mathematics who now serve in that capacity. There should be five astronomers, as at present, and the salary of those hereafter appointed should be sufficient to make up for the refusal to them of the privilege of retirement, and also to secure men of high scientific attainments, adequate to the demands of one of the most capable observatories of the world. As the above astronomical corps is now full, no appointment under the new statute proposed will be necessary till a vacancy occurs.

BUREAU OF STEAM ENGINEERING.

From the report of this Bureau it appears that the machinery of the *Concord*, *Petrel*, and *Baltimore*, after about six years of continuous service, has been given a thorough overhauling, and similar work is now in progress on the *Charleston* and *Newark*.

The expense incident to the preservation and maintenance of the machinery of ships in commission is necessarily a rapidly growing one. A modern ship like the *Brooklyn*, with about five times the displacement of the *Marion*, has at least fifteen times as much machinery. Extensive repairs have become necessary on the earlier ships of the new navy, and the overhauling and renewing of machinery will continue to be one of the general expenses to be provided for.

For the fiscal year ending June 30, 1897, a deficiency appropriation of $200,000 was made, and a similar amount will be needed for the current year. It is therefore asked that a sufficient appropriation be made at the coming session of Congress to avoid the necessity of a deficiency; and the estimates of this Bureau for the next fiscal year are increased by $275,000 over the appropriations for the current year. This increase is made necessary by the large number of ships in commission.

JUDGE-ADVOCATE-GENERAL.

The Judge-Advocate-General makes recommendations, approved by the Department, on the following subjects:

REMOVAL OF CHARGE OF DESERTION.

The Secretary of the Navy had power under an act of August 14, 1888, to remove this charge in the cases of men who, having served faithfully six months or more during the war, left the service in the spring and summer of 1865 without a discharge, and with a record of desertion. This act became inoperative after five years. Since then many deserving veterans of the late war are under this stigma and subject to the disqualifications attendant upon it, notwithstanding the fact that they rendered faithful service during the critical period of the war and left their posts only when their real work had all been honorably done.

The Secretary of War has power to remove the charge of desertion in like cases in the Army, and it is recommended that in justice it be given to the Secretary of the Navy.

DEPOSITIONS.

Serious inconvenience has arisen from the want of authority to offer depositions in evidence before naval courts. The extension to them, under proper safeguards, of the right to use depositions in substantially the manner now prescribed by statute for military courts is demanded in the interest of truth and justice.

CIVILIAN WITNESSES BEFORE NAVAL COURTS.

Naval courts have now no authority to compel the attendance and testimony of civilian witnesses. In cases where without their testimony an actual offense can not be proved, justice is defeated and discipline impaired. A law should be passed authorizing naval courts to certify cases of contempt on the part of civilians to the nearest United States court, to be, in the discretion of such court, dealt with in the same manner as if the offense had been committed in a proceeding before itself.

NAVAL EXAMINING AND RETIRING BOARDS.

When a candidate is examined for promotion and is found by the examining board to be physically disqualified, a separate board reexamines him for retirement, and the two boards sometimes reach conflicting conclusions. To remedy this, an act approved October 1, 1890, relating to the Army, should be extended to the Navy. Its effect would be to make the naval examining board at once into a retiring board in cases where the candidate for promotion is found physically disqualified.

PRESERVATION OF THE NAVAL PENSION FUND.

The expense of the maintenance of the naval home at Philadelphia is defrayed from the naval pension fund, which should be conserved. Under existing law the pensions of beneficiaries in the home are withheld while they are there and deposited to the credit of the naval hospital fund. Legislation is required authorizing the return to the naval pension fund of all pensions deducted on account of residence in the naval home.

EXAMINATION OF CHIEF ENGINEERS FOR PROMOTION.

To the general rule now prevailing in the Navy requiring examination of officers for promotion, an exception is made in the case of chief engineers when promoted to relative rank corresponding to the grade of commander. The rule has produced excellent results, and this exception to it should be abolished.

CLASSIFICATION OF VESSELS.

The law now is that the vessels of the Navy be divided into four classes: "Steamships of 40 guns or more shall be classed as first rates, those of 20 guns and under 40 as second rates, and all those of less than 20 guns as third rates." There are also provisions as to the rank of officers who may command vessels of these several classes. All this is now inconsistent with the character of our modern naval vessels and their armament. Tonnage is the best basis for classification, and proper legislation is recommended.

EXPENSE OF TRIAL TRIPS.

A recent change has been made in the method of payment of the expenses of trial trips of vessels built under contract, by stipulating that contractors shall pay the expenses of all trials before preliminary or conditional acceptance. This has disposed of a troublesome question, and has been done without substantially increasing the contract price of vessels.

BUREAU OF SUPPLIES AND ACCOUNTS.

The report of the Paymaster-General is accompanied by tabulated statements showing in detail the expenditures under all naval appropriations, and the objects to which they are applied; the cost of maintaining the Navy in all its branches; the receipts and expenditures of supplies; and the balances on hand at the end of the fiscal year.

The concentration under this Bureau of all matters relating to the purchases of supplies, and of all accounts coming under the naval establishment, secures the ascertainment at all times of all the expenditures, balances, etc. The accounts are comprehensive in scope, detailed in character, and are based on returns regularly received from each manufacturing department, from each navy-yard and station, and from each ship in commission.

CLOTHING FACTORY AT NEW YORK.

Attention is invited to the recommendation of the Paymaster-General for increasing the facilities and providing a separate building for the naval clothing factory of the navy-yard, New York. The factory is located on the second floor of the building originally designed for the storage of provisions and clothing, but the increase in the stock of supplies kept on hand, as well as the increased demands on the clothing factory, have resulted in an overcrowded condition in both establishments.

OIL HOUSE AT NEW YORK NAVY-YARD.

The construction of an oil house for the storage of oil, turpentine, and other inflammable materials, recommended by the Paymaster-General, is approved. The stock of these articles that must necessarily be kept on hand to meet the demands of the service is a constant menace to the millions of dollars' worth of other supplies and to the safety of the other buildings in which they are stored. In view of the great value of Government property at the New York Yard, the importance of immediate action in this matter can not be overestimated.

CERTIFIED CHECKS.

The act of May 25, 1896, authorized the Secretary of the Navy in his discretion to accept in lieu of the written guarantee required to accompany a proposal for naval supplies, and in lieu of the bond required for the faithful performance of a contract for furnishing such supplies, a certified check, payable to the order of the Secretary of the Navy, for the full amount of such proposal or contract. As the Department accepts a bond for one-half or one-third of the amount involved in a proposal or contract, merchants and manufacturers prefer the inconvenience of filing a bond rather than to give a certified check for the full amount, which, of course, is a loss of the use to them of that amount of cash. It is recommended that the act of May 25, 1896, be so amended as to authorize the acceptance, in lieu of a bond, of a certified check for such amount as may be deemed necessary.

CHECKAGE OF PAY OF OFFICERS TEMPORARILY ON SHORE.

When officers attached to a seagoing ship are ordered to perform some additional duty, such as service on a court or board, involving temporary absence from the ship, or are temporarily in hospital on shore, the difference between sea and shore pay is meantime checked against them. As their expenses are in these cases rather increased than decreased, they suffer a hardship. To correct this, it is suggested that section 1571 of the Revised Statutes be amended so as to read as follows:

> SEC. 1571. No service shall be regarded as sea service except such as shall be performed at sea, under the orders of a Department and in vessels employed by authority of law; but the fact that an officer attached to a vessel in commission is sent temporarily to a hospital on shore, or is assigned to temporary duty on shore as a member of a court or board, or otherwise, shall not be regarded as a detachment from sea service unless so specified in the order making such assignment.

ADVERTISEMENTS IN THE DISTRICT OF COLUMBIA.

Advertisements for supplies in the District of Columbia by any of the Departments of the Government are required by law to be "given to one daily and one weekly newspaper of each of the two principal political parties, and to one daily and one weekly neutral newspaper" (act approved January 21, 1881), and under the contruction placed upon this law by the Department it has been its practice to advertise in six newspapers. This law should be so amended as to exempt supplies for the Washington Navy-Yard from its requirements and leave the general law (secs. 3709 and 3718, R. S.) to control their purchase, as the present method involves extra expense with no corresponding benefit.

BUREAU OF MEDICINE AND SURGERY.

The report of the Surgeon-General shows a satisfactory health record of the Navy for 1896, and a reduction in the death rate from 6.82 in 1895 to 5.49 per 1,000 in 1896.

During the past year much work has been done toward the rehabilitation of all naval hospitals, by placing them in a thorough state of repair and in making their equipment conform to the standard of modern hospital requirements. They have been furnished with modern aseptic operating rooms and fitted with disinfecting plants and bacteriological and chemical laboratories.

The outfit furnished to the medical department of ships of the Navy has been modified and improved from time to time, in accordance with the general advances in medicine and surgery, and every care exercised toward increasing the facilities for the preservation of health and prevention of disease on board ship.

There are seventeen vacancies in the Medical Corps, and for these there are practically no candidates who are within the age limit, which is from 21 to 26. With the increase of naval vessels, action should be taken at once to insure the filling of these vacancies. It is strongly recommended that the limit of age for entrance into the Medical Corps of the Navy be raised to 30 years. At 26, the present limit, the graduates of our medical schools, in which the standards of training are steadily rising, are often not yet ready to begin practice. This demand is urgent.

MARINE CORPS.

The report of the colonel commandant of the Marine Corps recommends the authorization of additional enlistments. Five hundred men were added two years ago, but the rapid increase of naval vessels and the addition of two more shore stations which have been established—one at Puget Sound Naval Station, Wash., and one at Pensacola, Fla.—are the reasons for this recommendation.

The act of Congress approved February 9, 1889, entitled "An act to provide for the deposits of the savings of seamen of the United States Navy," should be made applicable to the Marine Corps. The result of this law, as applied to enlisted men in the Navy, has been most satisfactory, and at the end of the last fiscal year there was on deposit on this account $295,600.

The Department, following the plan successfully adopted by the Army of abolishing the canteen system, has established post exchanges in place of post traderships at some of the marine barracks, and intends to do so ultimately at all. Under this plan the profits go to the benefit of the men and not to an outside post-trader. As his one pecuniary interest is the enlargement of his sales, the element of private gain to him is thus eliminated. They are to be conducted under an officer, strict account is to be kept, and every dollar of profit expended in the improvement of food, the purchase of books, periodicals, etc., the bettering of life in barracks, and the general interest of the marine service.

NAVAL WAR COLLEGE.

The recent session of the college extended from June 1 to September 15. Twenty-one officers of the Navy and one of the Army were in attendance at different times. Four officers of the Naval Militia attended the course. In addition to the lectures on professional subjects, prominent civilians addressed the class.

The principal problem of the year was the consideration of the defense of Delaware and Chesapeake bays, the theater of operations embracing the whole coast from Sandy Hook to the Florida Strait. Parties of officers made a reconnoissance of those bays and much information was derived from their investigations. In this connection the president of the War College calls attention to the valuable cooperation with him in his work of the officers of the Naval Militia. By reason of their complete local knowledge they are able to throw light on the problems involved in the defense of the coasts.

The work of the college is of importance and value to the service. The discussion of hypothetical attacks upon our shores, and of the measures to be adopted to repel them or to minimize their effect, and the pursuit of strategic and practical studies are designed to prepare the commander of a vessel or of a squadron to make it most effective.

NAVAL MILITIA.

The Department has paid much attention to the development of the Naval Militia. The appropriation of $50,000 for this purpose, after deducting $2,000 for books of instruction, was allotted among fifteen States: Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Maryland, North Carolina, South Carolina, Georgia, Louisiana, California, Illinois, Michigan, and Ohio.

The State of Ohio organized a naval militia during the past year, and was included for the first time in the naval allotment. Illinois has mustered in four divisions and will share in the next allotment. Virginia has organized one division, but it has not yet been formally mustered in. This makes a total at the present time of seventeen States having naval-militia organizations.

During the past summer the Assistant Secretary of the Navy personally visited and inspected the Naval Militia of Ohio, Michigan, Illinois, and New York in their annual encampments, and in his report to the Department states that he was greatly pleased with the zeal and efficiency shown by the different organizations. The different battalions all had a tour of duty on board the vessels of the Navy during the past summer, except those of North Carolina and South Carolina.

Demand is continually made by the Naval Militia for old vessels, and recently the *Yantic* has been sent to the Lakes for the use of the Michigan organization. The supply of old wooden vessels is practically exhausted, and the Department has tried the experiment of loaning monitors, but the results have not so far been very satisfactory, as monitors are poor ships for cruising or for use as barracks.

But a small sum is appropriated for the maintenance and care of the Naval Militia, and this sum becomes smaller for each division from year to year, inasmuch as the number of organizations continually increases. The Department is therefore not able to drill and supervise these organizations as it would like to do, and they must be left largely to their own good sense, energy, and initiative. In consequence, there is a great variety in the condition of efficiency reached by the different organizations. Three or four, in the event of a sudden emergency, could be utilized at once for manning the smaller national cruisers; but this, of course, can not be generally the case with most of them. These must be depended upon primarily as a second line of defense in which there are two very important features. One is the placing of mines, the other the establishment of signal stations for coast defense.

The Department recommends that there be inserted in the provision for the maintenance of the Naval Militia the words "submarine mining outfits," to admit of training the militia for this purpose. Plans have been formulated with a view to establishing coast-signal stations for naval defense, and it is believed that the life-saving stations—with the consent of the Treasury Department—should be properly equipped for this purpose.

NAVAL WAR RECORDS.

Since the last annual report the Department has published and distributed the fourth and fifth volumes of the Official Records of the Union and Confederate Navies in the War of the Rebellion. The sixth volume is now in the hands of the printer.

The recommendation of my predecessor for the reorganization of this office, based on the plan pursued in the publication of the Records of the War of the Rebellion, is renewed. This work, which is to serve for all time as an authentic record, should be prepared under the direction of a board of publication, composed of an officer, to be selected by the Department, and two civilian experts. This would insure a definite and settled policy in the compilation.

LIBRARIES OF THE WAR AND NAVY DEPARTMENTS.

The attention of Congress is invited to the consolidation of the libraries of the War and Navy Departments. These libraries are composed of works largely of a technical character bearing on the subject of war. They are located in the same building, and it is believed that their consolidation would be in the interest of economy, saving unnecessary duplication of books and periodicals, and some expense of clerical force, and releasing floor space for other demands.

MISCELLANEOUS RECEIPTS.

A detailed statement, prepared in the Office of the Auditor for the Navy Department, will be found in the Appendix, showing deposits in the Treasury from November 1, 1896, to November 1, 1897, arising from the sale of condemned stores, materials, nautical books and charts, fuel, clothing; from rents of Government property; from supplies furnished to other branches of the Government, and from other lawful disposition of public property under the cognizance of the Navy Department.

The total amount so deposited was $115,330.07, of which sum $42,620.62 was covered into the Treasury as "Miscellaneous receipts on account of proceeds of public property," as required by section 3618 of the Revised Statutes, and the remainder, $72,709.45, carried as authorized by law to the credit of the proper appropriations to be applied to naval purposes.

Appropriations, expenditures, and balances for the fiscal year ending June 30, 1897, and balances October 31, 1897.

Title of appropriation.	Appropriations for fiscal year 1897. exclusive of public works.	Amount drawn in fiscal year 1897.	Balances June 30, 1897.	Balances Oct. 31, 1897.
General establishment:				
Pay of the Navy	$8,100,873.00	$6,881,622.26	$1,219,250.74	$625,577.44
Pay, miscellaneous	260,000.00	259,810.36	189.64	2,838.25
Contingent, Navy	7,000.00	5,191.96	1,808.04	727.48
Bureau of Yards and Docks:				
Maintenance	265,000.00	244,306.71	20,693.29	2,733.83
Repairs and preservation, navy-yards	400,000.00	365,082.58	34,917.42	8,598.37
Civil establishment	61,486.04	58,246.09	3,239.95	3,430.80
Contingent	15,000.00	14,989.75	10.25	14.78
Naval Home, Philadelphia, Pa	79,725.00	61,213.67	18,511.33	8,106.04
Bureau of Equipment:				
Equipment of vessels	1,312,147.00	1,181,823.52	130,323.48	3,364.22
Civil establishment	19,625.00	18,425.53	1,199.47	1,280.49
Contingent	12,000.00	11,993.10	6.90	85.04
Naval Observatory	11,800.00	10,555.60	1,244.40	202.50
Bureau of Navigation:				
Pay, Naval Academy	106,401.45	106,085.03	316.42	503.66
Repairs, Naval Academy	61,000.00	45,804.26	15,195.74	3,583.89
Heating and lighting, Naval Academy	20,000.00	16,714.69	3,285.31	844.64
Special course, Naval Academy	3,000.00	2,896.30	103.70	.31

Appropriations, expenditures, and balances for the fiscal year, etc.—Continued.

Title of appropriation.	Appropriations for fiscal year 1897, exclusive of public works.	Amount drawn in fiscal year 1897.	Balances June 30, 1897.	Balances Oct. 31, 1897.
Bureau of Navigation—Continued.				
Contingent, Naval Academy	$46,400.00	$34,189.80	$12,210.20	$3,109.48
Naval War College and Torpedo School	11,200.00	10,046.51	1,153.49	333.88
Naval Training Station	32,500.00	30,343.72	2,156.28	490.86
Gunnery exercises	6,000.00	4,130.24	1,869.76	155.01
Transportation, recruiting, and contingent	45,000.00	34,495.81	10,504.19	5,688.35
Ocean and lake surveys	14,000.00	10,963.29	3,036.71	2,617.76
Outfit for naval apprentices	33,750.00	19,539.29	14,210.71	4,031.06
Naval Station, Newport, R. I.	1,000.00	997.72	2.28	....
Bureau of Ordnance:				
Ordnance and ordnance stores	450,000.00	347,985.15	102,014.85	53,243.37
Repairs	30,000.00	27,919.27	2,080.73	959.12
Civil establishment	29,324.00	28,324.00	1,000.00	1,000.00
Contingent	8,000.00	7,341.77	658.23	1.94
Torpedo station	75,000.00	70,820.80	4,179.20	977.38
Bureau of Construction and Repair:				
Construction and repair	1,750,000.00	1,664,080.95	85,919.05	26,580.85
Civil establishment	19,972.50	18,955.31	1,017.19	1,017.74
Bureau of Steam Engineering:				
Steam machinery	928,500.00	869,907.26	58,592.74	8,744.88
Civil establishment	11,900.00	11,899.94	.06	.10
Contingent	1,000.00	715.73	284.27	28.32
Bureau of Supplies and Accounts:				
Provisions	1,405,000.00	1,114,904.72	290,095.28	97,497.95
Civil establishment	67,532.03	62,939.64	4,592.39	4,876.93
Contingent	50,000.00	47,998.17	2,001.83	26.84
Bureau of Medicine and Surgery:				
Medical department	65,000.00	64,976.82	23.18	169.96
Repairs	20,000.00	17,981.41	2,018.59	158.31
Contingent	30,000.00	25,710.34	4,289.66	121.95
Naval-hospital fund	20,000.00	20,000.00	....	....
Ambulances for naval hospitals	1,200.00	1,180.00	20.00	20.00
Naval cemetery, Mare Island, Cal	1,000.00	1,000.00	....	....
Marine Corps:				
Pay	764,296.40	716,097.07	48,199.33	18,418.95
Clothing	97,255.00	82,696.27	14,558.73	5,405.53
Provisions	120,642.75	88,623.46	32,019.29	18,016.44
Fuel	19,500.00	14,014.01	5,485.99	2,946.99
Repair of barracks	23,500.00	19,686.35	3,813.65	2,678.43
Military stores	13,297.00	12,028.85	1,268.15	11.03
Transportation and recruiting	15,000.00	11,930.52	3,069.48	911.42
Forage	2,800.00	1,772.82	1,027.18	658.15
Hire of quarters	6,624.00	5,309.46	1,314.54	1,013.74
Contingent	33,000.00	32,011.62	988.38	74.95
Total	16,984,251.17	14,818,279.50	2,165,971.67	923,378.91

As will be seen from the foregoing exhibit—

The appropriation for current expenses for the fiscal year ending June 30, 1897, exclusive of public works, amounted to	$16,984,251.17
Drawn by requisitions to June 30, 1897	14,818,279.50
Balance July 1, 1897	2,165,971.67
Drawn by requisitions from July 1, 1897, to October 31, 1897	1,242,592.76
Balance November 1, 1897	923,378.91
Add balances in the hands of disbursing officers at same date	4,028.20
Available balance, November 1, 1897	927,407.11

ESTIMATES AND APPROPRIATIONS.

Comparative exhibit of estimates and appropriations, 1898 and 1899.

Detailed objects of expenditure and appropriation.	Estimate, 1898.	Appropriation, 1898, current year.	Estimate, 1899.
General establishment:			
Pay of the Navy	$8,235,385.00	$8,235,385.00	$8,449,060.00
Pay, miscellaneous	300,000.00	300,000.00	300,000.00
Contingent, Navy	7,000.00	7,000.00	7,000.00
Bureau of Yards and Docks:			
Ordinary expenses	862,400.44	757,110.44	792,710.44
Public works	1,373,662.57	1,140,845.57	1,554,887.00
Bureau of Navigation:			
Ordinary expenses	159,450.00	150,950.00	208,950.00
Naval Academy	200,201.45	201,701.45	234,578.45
Bureau of Equipment:			
Ordinary expenses	1,485,642.00	1,488,642.00	1,514,178.40
Naval Observatory	5,000.00	5,000.00	34,200.00
Bureau of Ordnance	1,443,824.00	1,288,824.00	3,179,551.00
Bureau of Construction and Repair	1,832,472.50	1,759,972.50	3,157,007.00
Bureau of Steam Engineering	1,172,105.00	1,072,900.00	....
Bureau of Supplies and Accounts	1,525,432.03	2,525,432.03	1,525,432.03
Bureau of Medicine and Surgery	137,200.00	147,200.00	151,600.00
Marine Corps:			
Pay department	763,030.20	764,140.20	804,666.23
Quartermaster's Department	334,348.00	334,348.00	318,908.00
Total running expenses	19,837,153.19	20,179,451.19	22,232,728.55
Increase of the Navy:			
Bureau of Equipment	232,628.00	162,628.00	215,000.00
Bureau of Ordnance	7,720,796.00	7,220,796.00	4,254,800.00
Construction and machinery	6,425,359.00	6,425,359.00	3,970,473.00
Training vessel for Naval Academy	....	125,000.00	....
Total increase of the Navy	14,378,783.00	13,933,783.00	8,440,273.00
Grand total	34,215,936.19	34,113,234.19	30,673,001.55

PERSONNEL.

It is a pleasure to report to you the high character and fine sense of duty, the professional attainments, and patriotic spirit of the great body of officers of the line and staff of the Navy and Marine Corps. The whole impulse, from their entrance into the service at the Naval

Academy, is to develop not only efficiency in the performance of duty, but variety and breadth of ability and culture. They have the liberal education of extended foreign travel. Their employment necessitates the study not only of international and commercial relations, but also of modern scientific forces and their application to the practical demands of a great department of the national life.

Naval service is not limited to the sailing of a ship and the firing of a gun. A modern man-of-war is a compendium of industrial inventions and appliances; a business and manufacturing plant as well as a fighting machine. A large part of its crew is engaged in skilled labor—the running of engines and the movement of machinery. An officer's duties, and the demands upon his professional resources, whether in the movement of ships or in the work of the mechanical departments connected with their make and repair, involve problems of construction, the use of the dynamic forces of air, water, steam, and electricity, and the nice adjustment of batteries, guns, and gear of enormous tonnage, yet moved on hair lines and by a touch of the finger.

All this calls for advanced requirements on the part alike of those who command and direct, and of those who construct and operate. The responsibility that attaches to the captain of a single battle ship, or to the admiral who commands a fleet, necessitates the greatest resources of skill, prudence, discretion, and education. To these demands the Navy rises. Whether serving on shipbord, or in the important work of instructing our naval youth, or studying war problems, its officers in every line of the naval establishment deserve the public confidence.

There are, of course, sporadic cases of demerit. There is now and then an officer guilty of excessive use of intoxicating liquors, a fault which is simply unpardonable, in view of his responsibility for life and property and of the importance of his example to the men under his command, and which I know you are determined to punish with unrelenting severity. There is the occasional shirk, the seeker for soft place, the nerve-worn hesitant, the petty despot. There are cases, happily rare, of pecuniary dishonesty or untrustworthiness. It is the function of the examining boards to weed out all these elements and prevent their promotion.

There are also, sometimes, petty frictions and jealousies which make one long for the high mind. There is too often an inclination on the part of some officers, when a new question or exigency arises, to consider with aggressive and sometimes petulant zeal its bearing upon their special position, or command, or corps, or bureau, or station, lest they lose or somebody else get a thin slice of authority or jurisdiction, whereas their always first and paramount impulse should be the best interests of the whole service—a text that ought to hang on every eyelid in the Navy. There are men who would count their lives as nothing beside their country's need, yet pull apart "like a balky team" in the homely adjustments of ordinary work.

The rigid economy which, in view of the large and growing expenses of the Navy, ought to obtain in every detail of naval expenditure, is sometimes lacking, and the Department is making special effort to keep the importance of its necessity in the mind of the service.

There have been two or three courts-martial held upon offending officers, the results of which are monuments of either stupidity or favoritism.

But these exceptions only prove the rule, and the great body of our naval officers, especially the sifted wheat of it which would be selected for responsibility and command in case of emergency, are men of marked worth and of the best type, ready at any hazard of life or fortune to go anywhere, brave any peril, do any duty—qualified to serve their country not only in war but in the more varied arts of peace. Their standards are high, their zeal ardent, their courage and ability adequate to any demand, and no crisis can come in which they will not prove themselves in every respect the equals of the most illustrious names in naval history.

REORGANIZATION.

The question of a reorganization of the personnel of the Navy has been agitated for a long time. While this is rather a matter of form than of substance, and while in actual service whatever grievance exists in this respect is certainly always at the minimum when a level head is in command, it is yet undoubtedly true that some better adjustment of the different elements of the Naval Corps can be had whereby present frictions can be diminished and the whole service strengthened and stimulated in all its parts. The Department has, therefore, appointed a board, with the Assistant Secretary as chairman, who have the subject under consideration, and whose report will be transmitted to Congress.

ADDITIONAL OFFICERS.

The act of August 5, 1882, made a reduction in the active list of the Navy of 115 line officers, in the Medical Corps of 10, in the Pay Corps of 30, and in the Engineer Corps of 75. At that date our naval ships were at low ebb in number and quality. Their rapid increase since then in both respects, and the extensive additions due in the next two years, necessitate an increase in the number of officers and men.

The following table shows the present number, class, and pay of officers and men:

Pay of 1,508 officers on the active list	$3,414,500
Pay of 468 officers on the retired list	1,036,976
Pay of 11,000 petty officers, seamen, and other enlisted men	3,408,895
Pay of 1,200 apprentice boys at training stations and on board training ships	129,600
Pay of 20 mates (sec. 1408, Rev. Stat.)	18,000
Total	8,007,971

The 1,508 officers on the active list are divided as follows: Seven hundred and twenty-seven line, 170 Medical Corps, 96 Pay Corps, 183 Engineer Corps, 23 chaplains, 12 professors of mathematics, 39 naval constructors, 13 civil engineers, and 245 naval cadets, warrant officers, and mates.

The Chief of the Bureau of Navigation recommends an increase in the line of 100 lieutenants, 50 lieutenants of the junior grade, and 15 captains. The act of August 5, 1882, made a decrease in the number of officers of the line of 115. Subsequent legislation, which provided for the commissioning of a number of midshipmen as ensigns, practically restored the number of line officers. This increase, however, was all in the low grade of ensign, and the number of officers in the higher grades remains to-day unchanged. There are at present on the active list 45 captains, 250 lieutenants, and 75 lieutenants of the junior grade. The Department is of opinion that the needs of the service will be met if the number of lieutenants allowed is increased by 50 and of junior lieutenants by 25, making 300 in the one grade and 100 in the other.

In the case of the Pay Corps, the act of August 5, 1882, made a reduction of 30 officers. The Paymaster-General recommends a restoration of 20. He deems this number necessary in view of the recent and prospective commissioning of so many new vessels. These officers are appointed from civil life and can be secured at once. The Department recommends that this increase be made and that the age limit, which is now from twenty-one to twenty-six years, be raised to thirty years, in order to secure men of a maturity corresponding to the large financial trusts which are put in their hands.

The purpose of the act of August 5, 1882, was to reduce the Engineer Corps from 270 officers to 170. The reduction was to be gradual, one officer to be commissioned for every two vacancies occurring. Before the intended reduction had been effected the act of December 16, 1892, made the reduction to cease on June 30, 1891, and the number was then left at 195, as at present. The Engineer in Chief recommends an increase to 300, but the Department is of opinion that if the number prior to the act of August 5, 1882, be restored, the needs of the service will be met. This would necessitate an increase of 75 engineer officers.

As far back as 1890 Secretary Tracy recommended an increase in this corps, and stated that at that time there were not "enough engineer officers in the Navy for ordinary working purposes, and if no ships were building an enlargement of this corps would be necessary."

As to the best method of securing an additional number of officers, the Superintendent of the Naval Academy recommends, and this recommendation is concurred in by the chief of the Bureau of Navigation, that cadets be commissioned at the end of the four years' course, instead of two years later, as at present, thus doing away with the two years' cruise which cadets are now required to perform before graduation, and at once adding to the active list of the Navy about 60 officers—the cadets now at sea on their two years' cruise—and insuring the graduation of larger classes from the Academy each year.

This recommendation, however, is not entirely concurred in by the Department. The wisdom of commissioning as an officer a cadet who has never demonstrated his adaptability for his profession by actual service on board a man-of-war is questionable. It not infrequently occurs that cadets who have stood well at the Academy are out of place in practical service at sea. Then, too, the position of the commissioned officer is very different from that of the cadet. He becomes entitled to all the benefits which the law throws around the officers of the Navy. He is given a life position, becomes entitled to retirement, his pay is largely increased, and the spur of a desire to win a commission is withdrawn. Fresh from college, responsibilities are thrown upon him as an officer for which he is not ready. The public interest demands that his worth should be determined by experience in actual service before he is given a life position.

The Department is, however, of opinion that the test of one year at sea is sufficient. There seems also to be no reason why the cadet should be again examined in the branches in which he has proved proficient at the examination at the end of the four years' course. It is difficult to pursue studies at sea, and the time of the cadet can be better occupied with duties of a practical nature. The examination, therefore, at the end of the five years' course should be for the purpose of ascertaining the progress made during the year at sea in the work of an officer on board ship.

There seems, however, no reason why the district represented by the cadet at the Naval Academy should not become vacant at the end of the four years' course there, and this would insure the same increase in the number of cadets at the Academy as would be secured were the recommendation of the Superintendent of the Academy adopted.

Legislation is therefore asked that the age for admission to the Naval Academy shall be between 15 and 18 years; that at the end of the four years' course the cadet shall pass his examinations as at present, at which time his place shall become vacant; and that he then be sent to sea for one year, returning at the end of it to the Academy for final examination in the practical duties of his profession.

This will secure an immediate increase of 37 officers (the cadets who have been at sea for one year) and will also allow the commissioning in June next of the 49 cadets who will then complete their year's cruise.

It is desirable that any addition to the number of officers should be made gradually in order that no so-called "hump" may be developed, and it is believed that the foregoing recommendations will effect that end. The maximum number of cadets at the Academy is now fixed by law, and the number entering each year is about one-sixth of this maximum, the course being for six years. The number graduating each year is less than one-sixth of this maximum, and were the law changed in accordance with the recommendations herein made, the graduating classes would average about 50 per cent larger than now. This change would permit each Congressional district an appointment to the Academy once in four instead of once in six years as at present.

While the increase which would result if the changes recommended are carried out would be constant, it would probably be insufficient to provide for the future needs of the Navy and for a reserve of officers which could be called into service to man the reserve fleet and the auxiliary cruisers. It is therefore desirable that the President be given authority to appoint ten additional cadets to the Academy each year. Hereafter, if a sufficient number of officers shall have been graduated to meet the necessary increase, the surplus graduates should be discharged and allowed to seek other employment, but kept on the rolls, subject to the call of the President, for a number of years.

RESTORATION OF OFFICERS DISCHARGED UNDER ACT OF 1882.

By the act of August 5, 1882, the object of which was a reduction of the number of naval officers, several classes of naval cadets, who had entered the Academy under an understanding that they were to be taken into the naval service, were discharged. However necessary at the time, it was not only a hardship to them, but a loss to the Navy of many very promising and capable men.

It is reported that, if to those of them who are now available for reentry into the service and desire it, an opportunity were given to be restored to the foot of the classes to which they belonged, but not at a rank higher than that of junior lieutenant, and a rigid examination were required as to their mental, physical, and moral qualifications, there would probably be some fifteen or twenty who would pass it, and thus put at the immediate disposal of the Department that number of men whose education, training, and maturity well fit them for the duties of naval officers. This would at once do an equity and correct a hardship, and at the same time meet what has become a need of the service. It is recommended that legislation be had in this direction.

ADDITIONAL ENLISTED MEN.

While the increase of vessels has been constant provision has not been made for securing a corresponding increase of enlisted men. During the next two years 5 battle ships of the first class and 17 torpedo boats are to be placed in commission. Those now in commission absorb all the officers and men allowed by law. As vessels under construction are completed it will be necessary, in order to place them in commission, to take other vessels out and put them in reserve. Those in reserve can be made ready for service in a few days; but to make the reserve system of value the Secretary of the Navy should be authorized to make additional enlistments, at least to the extent recommended by the

Bureau of Navigation, and, should an emergency arise necessitating the employment of all the vessels on the Navy list, to such an extent as the emergency requires.

It is also important that we should be able to avail ourselves of our resources in our merchant fleet. Under existing law the Government is paying subsidies to a number of vessels which in case of war would prove most valuable adjuncts to the Navy; but the Secretary should have authority, if need be, to enlist men for them and to provide officers to command them. In this connection I quote a paragraph from the last annual report of my predecessor, Secretary Herbert:

> In the opinion of the Department such conditions should not be allowed to continue. Naval wars hereafter will be short, sharp, and decisive. Whoever may be called upon to consider the possibility of a sudden outbreak of war by the United States, any part of which is to be waged upon the high seas, will be deeply impressed with the utter inability of any Administration under present laws to utilize promptly and efficiently, as we should be able to do, our naval resources.

In order to secure better training on the part of the enlisted men of the Navy, and also a reserve force, the Department recommends that there be no definite limit placed to the number of apprentices, but that additional training vessels be equipped from time to time and every effort made to obtain apprentices from all parts of the country. When these apprentices attain their majority, such of them as are needed and are willing to reenlist can be used to fill the vacancies in the enlisted force, and the remainder allowed to seek other employment, but still for a limited number of years retained on the rolls, without pay, subject to the call of the President.

The training given naval apprentices not only fits them for performing the duties required of enlisted and rated men, but also makes them valuable citizens, and even should their services never be required the country would not be the loser.

The apprentice system is working well, and contributes yearly to the naval service many very intelligent and deserving American boys, who serve with credit, and who are a bright and promising feature on shipboard.

INCREASE OF THE NAVY.

Our remoteness from foreign powers, the genius of our institutions, and the devotion of our people to education, commerce, and industry, rather than to any policy that involves military entanglements, make war to be thought of only as a last resort in defense of our rights, and our military and naval establishments as a police force for the preservation of order and never for aggression. While all this is, therefore, an earnest of peace as the normal condition of our national life, there is no question of the necessity, the wisdom, and the economy, to the same end, of an effective navy, in view of the vast extent of our coast and the possibility of attack from the sea upon our great cities, where the concentration of population and property is enormous.

The country is committed to the increase of the Navy by the declarations of our people and the action of their representatives. The very fact that we are capable of manufacturing armor and guns, powder and projectiles, and to construct ships which are the equals of those built anywhere else, is in itself a source of great naval power, and our present resources in this respect should not be impaired. We should preserve and maintain these resources and the ability not only to continue the work already so well advanced, but to improve upon it, as the science of naval construction, as it is sure to do, develops the new models and methods which at this age of progress so rapidly replace the best of to-day with the better of to-morrow.

Hitherto for more than a decade the increase of the Navy has very properly been in the line of new ships, and wisely so, as this has hitherto been the vital need. In the opinion of the Department, the time has now come when that increase should be on adjunctory lines in order to bring our naval facilities up to the same line of advance. As heretofore indicated, the principal need to-day is that of sufficient docks, of which there is a deplorable lack; of adequate supplies of the munitions of war, which should never be at the hand-to-mouth stage; of an equipment of our navy-yards equal to the demand upon them of the increased number of our ships; and of an enlarged corps of officers and men to do the work.

Additions to our fleet may be hereafter necessary to bring it in case of emergency to an extent commensurate with the growing necessities of the country, especially in view of the development of Alaska, which is a continent in itself, and of the possible annexation of islands in the Pacific. On the other hand, it is a mistake not to recognize that our naval power has more than doubled within the last few years; that the case of any emergency beyond our present resources is the very rare case; that until it comes ships will be gradually taken out of commission and put into reserve in order to reduce running expenses; and that a due regard is necessary to the relation of the national expenditures to the national revenues.

The Department therefore recommends that the authorization of new ships by the coming Congress be limited to one battle ship for the Pacific Coast, where, after the five now under construction are completed, there will be only two, while on the Atlantic there will be seven; and also to a few torpedo boats and torpedo-boat destroyers, both of which are comparatively of little cost, and more of which are desirable in order to bring this swift, mobile, and handily effective arm of the service up to its place in the general scheme for coast defense.

COST.

According to the reports of the Paymaster-General, the total cost of maintaining the Navy during the fiscal year ending June 30, 1896, exclusive of its increase, and of permanent improvements at yards and stations specially appropriated for, was $15,494,862.03, and for the fiscal year ending June 30, 1897, $17,514,231.13. It appears, therefore, that the expense of maintaining the Navy is a growing one, as distinguished from its increase and permanent improvements, the cost of which varies from year to year according to the judgment of Congress as to the desirability of these latter items. Attention is called to this fact because the country should be under no misapprehension as to the increasing cost of maintenance.

The building of a ship is a definite fixed expense, incurred once for all. But to maintain it, to provide it with docks, naval stations, and other necessary facilities, to man and equip it, to keep it in repair—in short, to run the naval establishment—is, and must continue to be, a large charge on the public treasury, and, for a time certainly, an increasing one. Economy is necessary at large and in detail, not merely as a good theory to proclaim, but as an actual practice to perform.

With the best exercise of this virtue, expenses will be large in this, as in every other department of a government which represents the interests of a country so vast as ours. But it is believed that the people whose arm the Navy is, and who evidently appreciate its potential usefulness, desire to maintain it at the point of highest efficiency, and will do so the more cordially the more frankly they are informed of its real and deserving needs and demands, and of the justifiable cost they necessitate.

JOHN D. LONG,
Secretary of the Navy.

SECRETARY'S OFFICE—ESTIMATES, PROPOSALS, AND CONTRACTS.

Estimates of appropriations required for the service of the fiscal year ending June 30, 1899, by the Navy Department.

Detailed objects of expenditure, and explanations.	Estimated amount which will be required for each detailed object of expenditure.	Total amount to be appropriated under each head of appropriation.	Amount appropriated for the current fiscal year ending June 30, 1898.
SALARIES, OFFICE OF SECRETARY OF THE NAVY.			
Secretary (act Feb. 19, 1897)	$8,000.00		
Assistant Secretary (same act)	4,500.00		
Chief clerk (same act)	2,500.00		
Clerk to Secretary (same act)	2,250.00		
Clerk in charge of civil employments and labor regulations at navy-yards, and appointment clerk (same act)	2,250.00		
Disbursing clerk (same act)	2,250.00		
Two clerks of class 4 (same act)	3,600.00		
Two clerks of class 3 (same act)	3,200.00		
Stenographer (same act)	1,400.00		
One clerk of class 2 (same act)	1,400.00		
Five clerks of class 1 (same act)	6,000.00		
One clerk (same act)	1,000.00		
Telegraph operator (same act)	1,000.00		
Carpenter (same act)	900.00		
Two messengers (same act)	1,680.00		
Four assistant messengers (same act)	2,880.00		
Messenger boy (same act)	420.00		
Messenger boy (same act)	360.00		
Three laborers (same act)	1,980.00		
		$47,570.00	$47,570.00
CONTINGENT EXPENSES, NAVY DEPARTMENT.			
Stationery, furniture, newspapers, plans, drawings, drawing materials, horses and wagons to be used only for official purposes, freight, expressage, postage, and other absolutely necessary expenses of the Navy Department and its various bureaus and offices (act Feb. 19, 1897)		11,000.00	11,000.00
PRINTING AND BINDING.			
Printing and binding for the Navy Department, including $12,000 for the Hydrographic Office, to be executed under the direction of the Public Printer (act June 4, 1897)		90,000.00	70,000.00
NOTE.—For some years past the printing and binding necessary for the Navy Department has been gradually increasing without any increase in the appropriation. This has caused the appropriation to run short as early as three months prior to the close of the fiscal year, resulting in work actually necessary to facilitate the prompt transaction of the business of the Department being held back and rushed in at the commencement of the new fiscal year. In fact the Department has been compelled to hold up for the last three months of each fiscal year all work that has to be done at the main office. The increase of this appropriation from $70,000 to $90,000 is absolutely necessary.			

Estimates of appropriations required for the service of the fiscal year ending June 30, 1899, by the Navy Department—Continued.

Detailed objects of expenditure and explanations.	Estimated amount which will be required for each detailed object of expenditure.	Total amount to be appropriated under each head of appropriation.	Amount appropriated for the current fiscal year ending June 30, 1898.
SALARIES, OFFICE OF JUDGE-ADVOCATE-GENERAL.			
Chief clerk (R. S., p. 27, sec. 167; June 8, 1881, vol. 21, p. 164, sec. 1; Feb. 19, 1897, vol. 29, p. 564, sec. 1)	$1,800.00		
One clerk of class 4 (same acts)	1,800.00		
One clerk of class 3 (same acts)	1,600.00		
One clerk of class 3 (submitted) *a*	1,600.00		
One clerk of class 2 (act Feb. 19, 1897, vol. 29, p. 564, sec. 1)	1,400.00		
One clerk of class 1 (same act)	1,200.00		
One clerk (same act)	1,000.00		
One clerk (same act)	900.00		
One laborer (same act)	660.00		
		$11,960.00	$10,360.00
OFFICE OF THE SECRETARY.			
Library of the Navy Department.			
Salaries:			
One clerk of class 1 (act Feb. 19, 1897)	1,200.00		
One assistant messenger, at $720 (same act)	720.00		
One laborer, at $660 (same act)	660.00		
		2,580.00	2,580.00
Professional books and periodicals for the Library (same act) *b*	1,000.00	1,000.00	500.00
Office of Naval Records of the Rebellion.			
Salaries:			
Two clerks of class 4 (act Feb. 19, 1897, vol. 29, p. 563)	3,600.00		
Two clerks of class 2 (same act)	2,800.00		
Two clerks of class 1 (same act)	2,400.00		
Two clerks, at $1,000 each (same act)	2,000.00		
Two copyists, at $900 each (same act)	1,800.00		
Four copyists, at $720 each (same act)	2,880.00		
		15,480.00	15,480.00
Necessary traveling expenses for collection of records (same act)	400.00	400.00	400.00
Publication of the Official Naval Records of the Rebellion: For continuing the publication of an edition of 11,000 copies of the Official Records of the Union and Confederate Navies in the War of the Rebellion, in accordance with the plan approved by the Secretary of the Navy under the act of Congress approved July 31, 1894, and for the purpose of making such maps and illustrations as relate to the work, and for the compensation of such temporary expert services in connection with the preparation, publication, and distribution of said records as may be deemed necessary by the Secretary of the Navy, such experts to be selected and appointed by the Secretary of the Navy from time to time as the necessity therefor arises, the sum of $50,000: *Provided*, That hereafter the preparation of said records shall be conducted, under the Secretary of the Navy, by a board of three persons, one of whom shall be an officer of the Navy, to be selected by the Secretary of the Navy, and two civilian experts to be appointed by the Secretary of the Navy, the compensation of said civilian experts to be fixed by the Secretary of the Navy and to be paid from this appropriation (act Feb. 19, 1897, vol. 29, p. 564)	50,000.00	50,000.00	20,800.00

[a] In consequence of the large amount of work devolving upon the Office of the Judge-Advocate-General, not only upon contracts growing out of recent acts of Congress providing for the increase of the Navy, but in connection with the annually increasing legal work of the office generally, consequent upon the placing of modern ships in commission, the services of an additional law and contract clerk are, and for some time past have been, urgently needed. The work required being legal in its character, it is not believed that the services of a competent person can be secured for a compensation less than $1,600 per annum, and an estimate for an additional clerk of class 3 is accordingly submitted. The allowance of an additional clerk who may be placed in training for the higher grades of work in this office is a matter of great importance and can not be too strongly urged, upon the ground of present demands as well as in view of the possibility of changes, which may at any time occur, of such a nature as to deprive the office of the services of clerks who, by reason of many years of training and experience, have become competent.

[b] It is necessary that a sufficient appropriation should be made to obtain the most recent treatises on professional subjects, expensive books of scientific and technical value, and such periodicals, foreign and domestic, as contain data of value to naval officers, and especially to supply the needs of the Office of Naval Intelligence, which depends mainly upon this library for the technical and professional information used in its publications.

Estimates of appropriations required for the service of the fiscal year ending June 30, 1899, by the Navy Department—Continued.

Detailed objects of expenditure, and explanations.	Estimated amount which will be required for each detailed object of expenditure.	Total amount to be appropriated under each head of appropriation.	Amount appropriated for the current fiscal year ending June 30, 1898.
Office of Naval Intelligence.			
Legislative, executive, and judicial:			
One clerk of class 1 (act Feb. 19, 1897, vol. 29, p. 566, sec. 265) *a*	$1,200.00	$1,200.00	$1,200.00
One assistant draftsman (same act) *b*	1,400.00	1,400.00	1,400.00
Four copyists of class E *c*	1,000.00	4,000.00	
One laborer (act Feb. 19, 1897, vol. 29, p. 565, sec. 265) *d*	660.00	660.06	660.00
		7,260.00	
PAY OF THE NAVY.			
Pay of officers on sea duty; officers on shore and other duty; officers on waiting orders; officers on the retired list; clerks to commandants of yards and stations; clerks to paymasters at yards and stations; general storekeepers, receiving ships, and other vessels; extra pay to men reenlisting under honorable discharge; interest on deposits by men; pay of petty officers, seamen, landsmen, and apprentice boys, including men in the engineers' force and for the Coast Survey Service and Fish Commission, 11,000 men and 1,200 apprentices under training at training stations and on board training ships, and for men detailed for duty with naval militia, at the pay prescribed by law (R. S., p. 246, sec. 1367; p. 248, sec. 1386–1388; p. 265, sec. 1556; p. 269, sec. 1569; p. 269, sec. 1573; p. 272, sec. 1595; acts May 12, 1879, vol. 21, p. 3, sec. 1; Aug. 5, 1882, vol. 22, pp. 285–287, sec. 1; Mar. 3, 1883, vol. 22, pp. 472–473, sec. 1; Mar. 3, 1885, vol. 23, p. 340, sec. 1; Mar. 2, 1889, vol. 25, p. 809, sec. 1; July 19, 1892, vol. 27, p. 236, sec. 1; Mar. 3, 1893, vol. 27, p. 715, sec. 1; July 26, 1894, vol. 28, pp. 123–137, sec. 1; Apr. 24, 1896, vol. 29, p. 97, sec. 2; June 10, 1896, vol. 29, p. 361, sec. 1; Mar. 3, 1897)		8,449,060.00	8,235,385.00

NOTE.—The foregoing estimate is made up as follows:

Pay of 1,508 officers on the active list	$3,414,500
Pay of 309 naval cadets (under instruction)	154,500
Pay of 468 officers on the retired list	1,036,976
Pay of 105 clerks	135,400
Pay of 11,000 petty officers, seamen, and other enlisted men	3,408,895
Pay of 1,200 apprentice boys at training stations and on board training ships	129,600
Pay of 20 mates (sec. 1408, R. S.)	18,000
Extra pay of petty officers and seamen reenlisting under honorable discharge	141,189
To pay interest on deposits by men, act Feb. 9, 1889	10,000
Total	8,449.060

a One clerk of class 1 has been detailed to duty in this office for nearly ten years, but is now carried on the rolls of the Bureau of Supplies and Accounts.

b One assistant draftsman has been detailed to duty in this office, but is now carried on the rolls of the Bureau of Construction and Repair.

c Four copyists of class E, paid under the naval appropriation act, increase of the Navy, are now detailed to duty in this office. They are here estimated for so that they may be regularly transferred to the Office of Naval Intelligence.

d One laborer has been detailed to duty in this office, but is now carried on the rolls of the Nautical Almanac Office.

Respectfully submitted.

RICHARD WAINWRIGHT,
Chief Intelligence Officer.

Estimates of appropriations required for the service of the fiscal year ending June 30, 1899, by the Navy Department—Continued.

Detailed objects of expenditure, and explanations.	Estimated amount which will be required for each detailed object of expenditure.	Total amount to be appropriated under each head of appropriation.	Amount appropriated for the current fiscal year ending June 30, 1898.
PAY, MISCELLANEOUS.			
For commissions and interest; transportation of funds; exchange; mileage to officers while traveling under orders in the United States, and for actual personal expenses of officers while traveling abroad under orders, and for traveling expenses of apothecaries, yeomen, and civilian employees, and for actual and necessary traveling expenses of naval cadets while proceeding from their homes to the Naval Academy for examination and appointment as cadets; for rent and furniture of buildings and offices not in navy-yards; expenses of courts-martial, prisoners and prison, and courts of inquiry, boards of inspection, examining boards, with clerks' and witnesses' fees, and traveling expenses and costs; stationery and recording; expenses of purchasing-paymasters' offices of the various cities, including clerks, furniture, fuel, stationery, and incidental expenses; newspapers and advertising; foreign postage; telegraphing, foreign and domestic; telephones; copying; care of library, including purchase of books, photographs, prints, manuscripts, and periodicals; ferriage, tolls, and express fees; costs of suits; commissions, warrants, diplomas, and discharges; relief of vessels in distress; canal tolls and pilotage; recovery of valuables from shipwrecks; quarantine expenses; reports; professional investigation; cost of special instruction, at home or abroad, in maintenance of students and attachés, and information from abroad, and the collection and classification thereof, and other necessary and incidental expenses, $300,000. (Act of Mar. 3, 1897)	$300,000.00	$300,000.00	$300,000.00
CONTINGENT, NAVY.			
All emergencies and extraordinary expenses arising at home or abroad, but impossible to be anticipated or classified, exclusive of personal services in the Navy Department or any of its subordinate bureaus or offices at Washington, D. C.		7,000.00	7,000.00

Estimates of the amount required to pay the officers of the United States Navy for the fiscal year ending June 30, 1899.

ACTIVE LIST.

Number.	Grade.	Sea duty.			Other duty.		
		No.	Pay per annum.	Total.	No.	Pay per annum.	Total.
5	Rear admirals	5	$6,000	$30,000			
1	Rear admiral				1	$6,000	$6,000
10	Commodores	1	5,000	5,000	9	4,000	36,000
1	Captain (chief of bureau)				1	5,000	5,000
44	Captains	28	4,500	126,000	16	3,500	56,000
2	Commanders (chiefs of bureau)				2	5,000	10,000
1	Commander (assistant to chief of bureau)				1	3,500	3,500
82	Commanders	26	3,500	91,000	56	3,000	168,000
27	Lieutenant-commanders (after 4 years)	14	3,000	42,000	13	2,600	33,800
47	Lieutenant-commanders (first 4 years)	30	2,800	84,000	17	2,400	40,800
1	Lieutenant (judge-advocate-general)				1	3,500	3,500
153	Lieutenants (after 5 years)	90	2,600	234,000	63	2,200	138,600
96	Lieutenants (first 5 years)	63	2,400	151,200	33	2,000	66,000
1	Lieutenant (not in line of promotion)				1	2,000	2,000
75	Lieutenants, junior grade (first 5 years)	59	1,800	106,200	16	1,500	24,000
181	Ensigns (after 5 years)	145	1,400	203,000	36	1,200	43,200
62	Naval cadets (under-graduates)	61	950	57,950	1	500	500
14	Medical directors (after 20 years from date of commission as surgeon)				14	4,000	56,000
1	Medical director (chief of bureau)				1	5,000	5,000
11	Medical inspectors				11	4,000	44,000
4	Medical inspectors (fleet surgeons)	4	4,400	17,600			
8	Surgeons (third 5 years)	2	3,500	7,000	6	3,200	19,200
18	Surgeons (second 5 years)	7	3,200	22,400	11	2,800	30,800
24	Surgeons (first 5 years)	14	2,800	39,200	10	2,400	24,000
27	Passed assistant surgeons (after 5 years)	13	2,200	28,600	14	2,000	28,000
30	Passed assistant surgeons (first 5 years)	21	2,000	42,000	9	1,800	16,200
33	Assistant surgeons (first 5 years)	14	1,700	23,800	19	1,400	26,600
1	Pay director (chief of bureau)				1	5,000	5,000
12	Pay directors (after 20 years from date of commission as paymasters)				12	4,400	52,800
3	Pay inspectors (fleet paymasters)	3	4,400	13,200			
10	Pay inspectors	2	4,400	8,800	8	4,400	35,200
5	Paymasters (after 20 years)	1	4,200	4,200	4	4,000	16,000
8	Paymasters (fourth 5 years)	4	3,700	14,800	4	3,600	14,400
4	Paymasters (third 5 years)	1	3,500	3,500	3	3,200	9,600
7	Paymasters (second 5 years)	7	3,200	22,400			
16	Paymasters (first 5 years)	10	2,800	28,000	6	2,400	14,400
2	Passed assistant paymasters (after 5 years)	2	2,200	4,400			
18	Passed assistant paymasters (first 5 years)	12	2,000	24,000	6	1,800	10,800
10	Assistant paymasters (first 5 years)	9	1,700	15,300	1	1,400	1,400
1	Chief engineer (chief of bureau)				1	5,000	5,000
4	Chief engineers (fleet engineers)	4	4,400	17,600			
10	Chief engineers (after 20 years)				10	4,000	40,000
2	Chief engineers (fourth 5 years)				2	3,600	7,200
4	Chief engineers (third 5 years)	3	3,500	10,500	1	3,200	3,200
13	Chief engineers (second 5 years)	8	3,200	25,600	5	2,800	14,000
36	Chief engineers (first 5 years)	22	2,800	61,600	14	2,400	33,600
21	Passed assistant engineers (second 5 years)	12	2,450	29,400	9	2,250	20,250
45	Passed assistant engineers (first 5 years)	23	2,000	46,000	22	1,800	39,600
47	Assistant engineers (after 5 years)	32	1,900	60,800	15	1,600	24,000
22	Cadets (engineer division)	22	950	20,900			
7	Chaplains (first 5 years)	7	2,500	17,500			
16	Chaplains (after 5 years)	10	2,800	28,000	6	2,300	13,800
6	Professors of mathematics (after 15 years)				6	3,500	21,000
1	Professor of mathematics (third 5 years)				1	3,000	3,000
3	Professors of mathematics (second 5 years)				3	2,700	8,100
2	Professors of mathematics (first 5 years)				2	2,400	4,800
1	Chief constructor (chief of bureau)				1	5,000	5,000
3	Naval constructors (after 20 years)				3	4,200	12,600
7	Naval constructors (second 5 years)				7	3,400	23,800
5	Naval constructors (first 5 years)				5	2,000	10,000
11	Assistant constructors (second 4 years)				11	2,200	24,200
12	Assistant constructors (first 4 years)				12	2,000	24,000
8	Civil engineers (after 15 years)				8	3,500	28,000
1	Civil engineer (second 5 years)				1	2,700	2,700
4	il engineers (first 5 years)				4	2,400	9,600
17	tswains (after 12 years)	7	1,800	12,600	10	1,600	16,000
1	tswain (fourth 3 years)	1	1,600	1,600			
6	tswains (third 3 years)	4	1,400	5,600	2	1,300	2,600
	tswains (first 3 years)	14	1,200	16,800	4	900	3,600
	nners (after 12 years)	2	1,800	3,600	11	1,600	17,600
	ers (fourth 3 years)	3	1,600	4,800			
	ers (third 3 years)	3	1,400	4,200	1	1,300	1,300
	ers (second 3 years)	4	1,300	5,200	6	1,000	6,000
	ers (first 3 years)	14	1,200	16,800	1	900	900

Estimates of the amount required to pay the officers of the United States Navy for the fiscal year ending June 30, 1899—Continued.

ACTIVE LIST—Continued.

Number.	Grade.	Sea duty.			Other duty.		
		No.	Pay per annum.	Total.	No.	Pay per annum.	Total.
22	Carpenters (after 12 years from date of appointment)	11	$1,800	$19,800	11	$1,600	$17,600
2	Carpenters (fourth 3 years)	2	1,600	3,200	....	....	....
4	Carpenters (second 3 years)	1	1,300	1,300	3	1,000	3,000
16	Carpenters (first 3 years)	12	1,200	14,400	4	900	3,600
14	Sailmakers (after 12 years from date of appointment)	2	1,800	3,600	12	1,600	19,200
1	Sailmaker (fourth 3 years)	1	1,600	1,600	....	....	....
15	Mates	11	1,200	13,200	4	900	3,600
1,508	Total	883	....	1,895,750	625	....	1,518,750

Pay for 1,508 officers on the active list	3,414,500
Pay for 309 naval cadets (under instruction at Naval Academy at $500 per annum)	154,500
Aggregate	3,569,000

RETIRED LIST.

Grade.	Number.	Pay per annum.	Total.
Rear-admirals	2	$6,000	$12,000
Do	30	4,500	135,000
Commodores	9	3,750	33,750
Captains	7	3,375	23,625
Do	2	2,625	5,250
Do	1	2,250	2,250
Do	1	1,950	1,950
Commanders	15	2,625	39,375
Do	1	2,100	2,100
Do	2	1,400	2,800
Do	1	1,150	1,150
Lieutenant-commanders	11	2,250	24,750
Do	5	2,100	10,500
Do	1	1,950	1,950
Do	1	1,500	1,500
Do	1	1,350	1,350
Do	2	1,100	2,200
Do	1	700	700
Lieutenants	36	1,950	70,200
Do	4	1,800	7,200
Do	2	1,200	2,400
Do	5	900	4,500
Lieutenants (junior grade)	8	1,500	12,000
Do	1	1,350	1,350
Do	1	900	900
Ensigns	13	1,050	13,650
Do	1	900	900
Do	1	500	500
Medical directors	4	3,750	15,000
Do	16	3,300	52,800
Do	6	3,300	19,800
Surgeons	2	3,150	6,300
Do	6	2,625	15,750
Do	6	2,400	14,400
Do	1	2,100	2,100
Passed assistant surgeons	8	1,650	13,200
Do	1	1,100	1,100
Assistant surgeons	3	1,425	4,275
Do	2	1,275	2,550
Do	1	850	850
Pay directors	5	$3,300	$16,500
Pay inspectors	3	3,300	9,900
Do	1	1,500	1,500
Paymasters	8	3,150	25,200
Do	2	2,400	4,800
Do	1	1,400	1,400
Passed assistant paymasters	1	1,500	1,500
Assistant paymasters	1	1,425	1,425
Do	1	600	600
Chief engineers	1	3,750	3,750
Do	24	3,300	79,200
Do	8	3,150	25,200
Do	15	2,625	39,375
Do	1	2,400	2,400
Passed assistant engineers	4	2,025	8,100
Do	2	1,838	3,676
Do	22	1,650	36,300
Do	2	1,500	3,000
Do	3	1,275	3,825
Do	1	1,100	1,100
Do	1	850	850
Do	1	400	400
Assistant engineers	23	1,425	32,775
Do	3	1,275	3,825
Do	1	950	950
Do	1	850	850
Do	1	600	600
Do	1	500	500
Chaplains	7	2,100	14,700
Professors mathematics	4	2,625	10,500
Naval constructors	4	3,150	12,600
Civil engineers	2	3,250	6,500
Boatswains	18	1,350	24,300
Gunners	26	1,350	37,800
Carpenters	20	1,350	27,000
Sailmakers	15	1,350	20,250
Mates	11	900	9,900
Total	468	....	1,036,976

Number of clerks, and their pay, allowed to commandants of yards and stations, to paymasters of yards, to general storekeepers, and on receiving ships and cruising vessels.

Number and designation.	Where employed.	Pay per annum.
One first clerk to commandant	Navy-yard, Portsmouth, N. H	$1,500
One second clerk to commandant	do	1,200
One clerk to paymaster of yard	do	1,400
One principal clerk to general storekeeper	do	1,300
One first clerk to commandant	Navy-yard, Boston, Mass	1,500
One clerk to paymaster of yard	do	1,600
One principal clerk to general storekeeper	do	1,600
One clerk to paymaster of receiving ship	do	1,600
One first clerk to commandant	Navy-yard, New York, N. Y	1,500
One second clerk to commandant	do	1,200
One clerk to paymaster of yard	do	1,600
One principal clerk to general storekeeper	do	1,600
One clerk to paymaster of receiving ship	do	1,600
One first clerk to commandant	Navy-yard, League Island, Philadelphia, Pa.	1,500
One second clerk to commandant	do	1,200
One clerk to paymaster of yard	do	1,600
One principal clerk to general storekeeper	do	1,600
One clerk to paymaster of receiving ship	do	1,600
One first clerk to commandant	Navy-yard, Norfolk, Va	1,500
One second clerk to commandant	do	1,200
One clerk to paymaster of yard	do	1,400
One principal clerk to general storekeeper	do	1,300
One clerk to paymaster of receiving ship	do	1,300
One first clerk to commandant	Navy-yard, Washington, D. C	1,500
Two second clerks to commandant, at $1,200 each	do	2,400
One clerk to paymaster of yard	do	1,600
One principal clerk to general storekeeper	do	1,600
One second clerk to commandant	Navy-yard, Pensacola, Fla	1,200
One clerk to paymaster of yard	do	1,400
One first clerk to commandant	Navy-yard, Mare Island, Cal	1,800
One second clerk to commandant	do	1,200
One clerk to paymaster of yard	do	1,800
One principal clerk to general storekeeper	do	1,300
One clerk to paymaster of receiving ship	do	1,800
One clerk to commandant	Naval station, New London, Conn	1,500
One clerk to paymaster of station	do	1,300
One clerk to commandant	Naval station, Newport, R. I	1,500
One clerk to commandant	Training station, Newport, R. I	1,500
One clerk to paymaster of receiving ship	do	1,300
One clerk to general storekeeper	Training station, Newport, R. I	1,300
One clerk to paymaster of station	Torpedo station, Newport, R. I	1,300
One clerk to president	War College, Newport, R. I	1,500
One clerk to commandant	Naval station, Key West, Fla	1,500
One clerk to paymaster of station	do	1,300
One clerk to commandant	Naval Academy, Annapolis, Md	1,500
One clerk to cadet storekeeper	do	1,300
One clerk to general storekeeper	do	1,300
One clerk to commissary	do	1,300
One clerk to paymaster of Academy	do	1,300
One clerk to paymaster of ships	do	1,300
One clerk to commanding officer	Naval Home, Philadelphia, Pa	1,500
One clerk to paymaster	do	1,300
One clerk to general inspector, pay corps	do	1,300
One clerk to commandant	Naval station, Puget Sound, Wash	1,500
One clerk to paymaster of station	do	1,300
One clerk to commandant	Naval station, Port Royal, S. C	1,500
One clerk to paymaster	do	1,300
One clerk to paymaster	Naval Proving Grounds	1,300
Eight clerks to paymasters of flagships, at $1,100 each.		8,800
Eleven clerks to paymasters of first-rate ships, at $1,300 each.		14,300
Thirteen clerks to paymasters of second-rate ships, at $1,100 each.		14,300
Fourteen clerks to paymasters of third-rate ships, t $1,000 each.		14,000
Total		135,400

RECAPITULATION.

Total pay for 1,508 officers on the active list	**$3,414,500**
Total pay for 309 naval cadets	**154,500**
Total pay for 468 officers on the retired list	**1,036,976**
Total pay for 105 clerks	**135,400**
Total	**4,741,376**

Schedule of bids and statement of contracts awarded and entered into for furnishing stationery for the Navy Department and its bureaus and offices during the fiscal year ending June 30, 1898.

Bidder.	Items.									
	1	2	3	4	5	6	7	8	9	10
Easton & Rupp, Washington, D. C	$2.50	$2.50	$2.10	$2.50	$2.60	$2.60	$2.40	$2.50	$5.70	$5.70
R. Carter Ballantyne, Washington, D. C	1.28	1.25	1.64	1.88	2.06	2.06	1.73	*1.78	3.36	3.36
Manhattan Supply Co., New York City	*2.45	*2.45	*1.45	*1.70	*1.85	*1.85	*1.40	1.85	*3.20	*3.20

Bidder.	Items.									
	11	12	13	14	†15	16	17	18	19	20
Easton & Rupp, Washington, D. C	$1.70	*$0.70	$1.00	$0.60		$2.55	$3.82	*$4.25	$1.25	$1.58
Manhattan Supply Co., New York City	3.20	.75	.80	*.40		2.90	4.20	4.40	*1.20	*1.45
William H. Teepe, Washington, D. C	*1.68					*2.40	*3.60		1.10	1.15
Joshua R. Buckelew, Washington, D. C		.70	*.80						1.26	1.50

Bidder.	Items.									
	21	22	23	24	25	26	27	28	29	30
Easton & Rupp, Washington, D. C	$1.48	$1.70	$2.24	$1.90	$4.25	$4.25	$4.25	$4.25	$4.25	$0.70
R. Carter Ballantyne, Washington, D. C										.72
Manhattan Supply Co., New York City	1.30	1.60	2.00		4.79	4.79	10.79	4.79	10.79	
Miller-Bryant-Pierce Co., Aurora, Ill					3.75	3.75	3.75	3.75	3.75	
Joshua R. Buckelew, Washington, D. C	*.99	*1.20	*1.83	*1.68	5.00	5.00	5.00	5.00	5.00	
The Seamless Rubber Co., New Haven, Conn										*.47
John C. Parker, Washington, D. C					*4.50	*4.50	*4.50	*4.50	*4.50	

Bidder.	Items.									
	31	32	33	34	35	36	37	38	39	40
Easton & Rupp, Washington, D. C	$0.30	$0.44	$0.52	$0.61	$0.09	$0.10	$0.11	$0.12	$0.13	$0.
R. Carter Ballantyne, Washington, D. C	.36	.45	.54	.63	.09	.10½	.11¼	.10½	.13½	.
The Seamless Rubber Co., New Haven, Conn	*.24	*.28	*.38½	*.43¼	*.08⅓	*.09	*.09¼	*.09¾	*.11	*.

Bidder.	Items.									
	41	42	43	44	45	46	47	48	49	50
Easton & Rupp, Washington, D. C	$0.25	$0.28	$0.32	$0.35	$0.38 .40 *.21	$0.40 *.21	$0.38 .40 *.21	$0.46 *.20	$0.38 .40 *.21	$0.38 .70 .40 *.21
R. Carter Ballantyne, Washington, D. C	.25	.29	.32½	.35½	.44⅔		.44⅔		.44⅔	.44⅔
Fred. A. Schmidt, Washington, D. C								.50		
The Seamless Rubber Co., New Haven, Conn	*.13¼	*.17	*.19½	*.22½						
C. S. Braisted, New York City					.29	.29	.29	.35	.29	.29
Favor, Ruhl & Co., New York City							.25	.34	.53	.53

* Contract awarded. † No proposals called for.

Schedule of bids and statement of contracts awarded and entered into, etc.—Continued.

Bidder.	Items.									
	51	52	53	54	55	56	57	58	59	60
Easton & Rupp, Washington, D. C	*$0.30 .60	$0.40	$0.60	$0.60	$0.60	$0.60	$0.50	$0.44 .48 *.25	$0.50 .48 *.25	$0.44 .48 *.25
R. Carter Ballantyne, Washington, D. C	.26	......	.67½	.67½	.67½	......	.74½	.47½	.54	.47½
Fred. A. Schmidt, Washington, D. C	....	....	.65 .75	.65 .75	.65 .75	.65 .75	....	....	....	....
C. S. Braisted, New York City	.20	*.37$\frac{5}{16}$	*.50	*.50	*.50	*.50	*.38$\frac{5}{16}$	.25	.25	.25
Favor, Ruhl & Co., New York City	.73½	......	.32	.32	......	......	.73½ .77	.49 .52 .42 .44	.54 .57 .42 .44	.49 .44
Rudolph, West & Co., Washington, D. C	......	......	......	......	......	.60	......	......	......	......

Bidder.	Items.									
	61	62	63	64	65	66	67	68	69	70
Easton & Rupp, Washington, D. C	$0.44 .48 *.25	$0.15 *.17 .25 .21	*$0.27	$0.28 .29	$0.25 .30 .27	$0.70	$0.38	*$0.65	$0.76	$0.76
R. Carter Ballantyne, Washington, D. C	.67½	......	......	......	......	.70	.38	.65½	.75	.75
Manhattan Supply Co., New York City	......	......	......	......	......	.77	.43	.70	.70	.70
William H. Teepe, Washington, D. C	......	......	......	......	......	.78	.42	.70	*.67	*.67
Fred. A. Schmidt, Washington, D. C	......	......	......	......	......	*.69	*.37½	......	......	......
C. S. Braisted, New York City	.25	.19	.29$\frac{1}{16}$	*.28	*.23	......	......	......	......	......
Favor, Ruhl & Co., New York City	.57	.63	.42 .52	.48	......	......	......	......	......	......

Bidder.	Items.									
	71	72	73	74	75	76	77	78	79	80
Easton & Rupp, Washington, D. C	$0.76	$0.76	$0.76	$0.76	*$0.66	*$0.66	*$0.48	$0.37	*$0.32	$0.39
R. Carter Ballantyne, Washington, D. C	.75	.75	.75	.54	.68	.68	.68	*.36	.33	.39
Manhattan Supply Co., New York City	.70	.70	.70	*.53	.67	.67	.67	.40	.33	*.39
William H. Teepe, Washington, D. C	*.67	*.67	*.67	.68	1.00	1.00	1.00	.45	.38	.45

Bidder.	Items.									
	81	82	83	84 †	85	86	87	88	89	90
Easton & Rupp, Washington, D. C	$0.36	*$0.48	*$0.46	......	$1.00	$0.63	$0.63	$0.30	$0.40	*$0.40
R. Carter Ballantyne, Washington, D. C	*.36	.49	.47	......	*.95	.76	.76	......	.42	.61
Manhattan Supply Co., New York City	.37	.49	.50	......	1.00	.64	.64	*.30	*.40	.40
William H. Teepe, Washington, D. C	.42	.57	......	......	1.00	*.63	*.63	......	......	......
C. S. Braisted, New York City	......	......	......	......	......	......	......	.27	......	......

* Contract awarded.

† No proposals called for.

Schedule of bids and statement of contracts awarded and entered into, etc.—Continued.

Bidder.	Items.									
	91	92	93	94	95	96	97	98	99	100
Easton & Rupp, Washington, D. C	$0.38	$0.62	$1.55	$0.36	*$0.50	$0.48	$0.37	$0.48	$0.36½	$0.11
R. Carter Ballantyne, Washington, D. C	.38	.59½	1.41			.49	.32	*.49	.31	1.30
Manhattan Supply Co., New York City	*.36	*.58	*1.40	*.33	.55	*.46	*.25		*.29	*1.20

Bidder.	Items.									
	101	102	103	104	105	106	107	108	109	110
Easton & Rupp, Washington, D. C	$0.91	$0.37	$1.50	$9.00 10.80 7.00 8.40 6.00 *7.25	$0.01½		*$0.07½	$1.20		
R. Carter Ballantyne, Washington, D. C	1.23	*.29		10.00 7.22 5.75	*.01					
Manhattan Supply Co., New York City	*.90	.35	*1.30	7.20		$0.05⅒	.14	.90	$1.60	$0.07
William H. Teepe, Washington, D. C				8.00		.06				
Joshua R. Buckelew, Washington, D. C			1.50					1.50		
John C. Parker, Washington, D. C						*.05½				
Shoemaker & Busch, Philadelphia, Pa						.05½	.08½	*.36		.04
George F. Muth & Co., Washington, D. C								.30	1.18	*.05
Rudolph, West & Co., Washington, D. C									*.90	.06

Bidder.	Items.									
	111	112	113	114	115	116	117	118	119	120
Easton & Rupp, Washington, D. C	$0.70	$0.20	$0.25	$0.30	$0.30 *.25	*$0.45	$1.50	*$0.35	$0.85	$0.24 .16 .13
R. Carter Ballantyne, Washington, D. C	*.58 *.64 *.70	.28	.31	.34				.35½	*.78	.24
Manhattan Supply Co., New York City							*1.10			
C. S. Braisted, New York City		*.20	*.24	*.27						*.15

Bidder.	Items.									
	121	122	123	124	125	126	127	128	129	130
Easton & Rupp, Washington, D. C	$0.50 .30 .23 .45	$0.26 *.25	$0.75	$1.00 *.30 .40 .16	$0.70	$1.90	*$4.00	*$0.07	*$0.07	$0.05
R. Carter Ballantyne, Washington, D. C	.48							.11	.15	*.04½
Fred A. Schmidt, Washington, D. C			*.62	1.50	*.62			.07½ .08	.09 .12½	
C. S. Braisted, New York City	*.18	.36		.50						
Favor Ruhl & Co., New York City								.03 .06 .04 .07	.05	
George F. Muth & Co., Washington, D. C					.64			.08	.08½	
Rudolph, West & Co., Washington, D. C						*1.65				

* Contract awarded.

Schedule of bids and statement of contracts awarded and entered into, etc.—Continued.

Bidder.	Items.									
	131	132	133	134	135	136	137†	138	139	140
Easton & Rupp, Washington, D. C	$0.04½	*$0.03½	$0.07	$0.08½	$0.09	$2.00	......	*$1.25 1.80 2.80	$0.68 .48 *3.50	$1.20
R. Carter Ballantyne, Washington, D. C	*.04½	.04	*.06½	.07½ *.04½	.09½ *.05½	*1.00	......	......	.66	*.91
Manhattan Supply Co., New York City	......	......	.07	.05	.06½	1.10	......	1.70	3.45	.90
William A. Teepe, Washington, D. C	......	......	......	.07	.08	......	......	......	......	......

Bidder.	Items.									
	141	142	143†	144	145	146	147	148	149	150
Easton & Rupp, Washington, D. C	$1.60	$0.80	......	$0.80	$1.10	$1.50	*$1.80	$4.80 4.28	$2.90	*$2.50
R. Carter Ballantyne, Washington, D. C	*1.29 2.77	*.43¼	......	......	......	......	......	......	1.75	......
Manhattan Supply Co., New York City	......	.40	......	*.58	*.70	*1.30	1.90	*3.75	1.35	2.50
William H. Teepe, Washington, D. C	......	......	......	......	......	......	......	......	2.50	3.50
Shoemaker & Busch, Philadelphia, Pa	......	......	......	......	......	......	......	......	1.35	......
Mackall Bros. & Flemer, Washington, D. C	......	......	......	......	......	......	......	......	1.40 *.98	2.25
Rudolph, West & Co., Washington, D. C	......	......	......	......	......	......	......	4.45	......	......

Bidder.	Items.									
	151	152	153	154†	155	156	157	158	159	160
Easton & Rupp, Washington, D. C	*$2.48	*$4.50 5.30	*$5.50	......	*$2.00	$5.50	$0.24	*$0.12	$0.60	$0.55
R. Carter Ballantyne, Washington, D. C	......	......	......	......	2.10	*5.10	......	......	.51	......
Manhattan Supply Co., New York City	3.00	5.20	7.50	......	2.25	5.20	.21	......	*.50	.50
William H. Teepe, Washington, D. C	......	......	6.00	......	......	......	*.22	2.00	......	*.50

Bidder.	Items.										
	161	162	163	164	165	166	167	168	169	170	171
Easton & Rupp, Washington, D. C	$0.32	$0.14	$0.20	$0.38	$0.80	$0.18	*$0.14	$0.45	$0.15	$0.65	$0.48
R. Carter Ballantyne, Washington, D. C	......	......	......	......	1.34 4.84	.19⅒	......	......	......	......	......
Manhattan Supply Co., New York City	*.16	.12	.16	......	......	*.17	......	......	......	.50	.49
William H. Teepe, Washington, D. C	.38	.13	.17½	*.35	*.70	......	......	......	......	......	.95 *.55
Rufus P. Clarke, Washington, D. C	......	......	......	......	......	.17½	......	......	......	......	......
Thompson C. Gill & Co., Philadelphia, Pa	......	......	......	......	3.00	......	......	......	......	......	......
Shoemaker & Busch, Philadelphia, Pa	......	*.09½	*.13½	......	......	......	......	.34½	.05½	.54	.74
George F. Muth & Co., Washington, D. C	......	......	......	......	......	......	......	......	......	......	.52 .83
Mackall Bros. & Flemer, Washington, D. C	......	......	......	......	......	......	......	.85 *.75 .38	*.06 .19 .06	.59 *.54	.55
Rudolph, West & Co., Washington, D. C	......	......	......	......	......	......	......	.35	......	.55	......

* Contract awarded.

† No proposals called for.

Schedule of bids and statement of contracts awarded and entered into, etc.—Continued.

Bidder.	Items.										
	172	173	174	175	176	177	178	179	180	181	182†
Easton & Rupp, Washington, D. C.	$0.46	$0.15	$0.30	$3.60	$5.60	$10.00	$2.48 *5.60 2.80	$1.12	*$1.22	*$1.10	......
R. Carter Ballantyne, Washington, D. C.	......	......	*.27½	......	......	......	......	......	......	......	......
Manhattan Supply Co., New York City	......	......	......	5.40	5.20	8.70	5.50	1.10	1.20	1.05	......
William H. Teepe, Washington, D. C	......	......	.40	......	......	......	......	......	......	......	......
Joshua R. Buckelew, Washington, D. C	......	......	......	......	......	......	......	......	......	1.10	......
Shoemaker & Busch, Philadelphia, Pa	......	*.15	......	......	......	......	......	......	......	......	......
E. J. Brooks & Co., New York City	......	......	......	......	......	......	......	*1.05	......	......	......
George F. Muth & Co., Washington, D. C	.27	......	......	......	......	......	......	......	......	......	......
Rudolph, West & Co., Washington, D. C	*.35	.08	......	*3.45	*5.20	*8.60	......	......	......	......	......

Bidder.	Items.										
	183	184	185	186	187	188	189	190	191	192	193
Easton & Rupp, Washington, D. C	$2.50	$2.25	$4.00	$0.45	$1.50	$3.00	*$1.44	*$4.60	$4.00	*$1.20 .90	*$1.48 1.25
Manhattan Supply Co., New York City	......	......	4.00	......	1.54	2.10	......	5.20	3.90	1.04 .59	1.48 .89
William H. Teepe, Washington, D. C	*2.10	*2.00	......	......	.95 .75	......	......	......	*3.00	......	......
Fred A. Schmidt, Washington, D. C	......	......	......	......	......	......	......	......	......	1.60 1.10	2.30 1.50
Rufus P. Clarke, Washington, D. C	......	......	......	......	......	2.10 2.20 2.35 *2.90 3.25 2.60 3.40	......	......	......	......	......
Thompson C. Gill & Co., Philadelphia, Pa	......	......	4.80	......	......	......	......	......	......	......	......
Shoemaker & Busch, Philadelphia, Pa	......	......	3.45	.36	*1.54 .75	......	......	......	......	......	......
George F. Muth & Co., Washington, D. C	......	......	*3.25	......	......	......	......	......	......	......	......
Mackall Bros. & Flemer, Washington, D. C	......	......	4.64 3.58 6.25	*.36	1.56½	......	......	......	......	......	......
Rudolph, West & Co., Washington, D. C	......	......	......	......	......	......	......	5.20	......	......	......

* Contract awarded.

† No proposals called for.

Schedule of bids and statement of contracts awarded and entered into, etc.—Continued.

HYDROGRAPHIC OFFICE.

Bidder.	Items.									
	1	2	3	4	5	6	7	8	9	10
Fred A. Schmidt, Washington, D. C	......	......	......	......	$0.21	......	......	......	......	......
Thompson C. Gill & Co., Philadelphia, Pa	......	$0.70	......	......	......	......	......	......	......	......
Shoemaker & Busch, Philadelphia, Pa	$2.44	*.28½	$0.16	......	......	$0.15	$1.31	$0.29½	......	*$0.21
George F. Muth & Co., Washington, D. C	*2.40	.29	*.10	......	*.20	......	1.31	.40	......	.22
Mackall Bros. & Flemer, Washington, D. C	2.44	.32	......	......	......	*.14½	*1.30	.19½ *.22 .24½	......	......
Rudolph West & Co., Washington, D. C	......	......	......	......	......	......	1.33	......	......	......
George Meier & Co., New York City	......	......	......	*$4.00	......	......	......	.23	$0.75 .60 .60 .40 .85 .95 1.75 1.75 1.75 .35 3.50 .30 1.75 1.50 .75 1.00 2.25 1.00 .22	......
The Standard Ink Co., Newark, N. J	......	......	......	......	......	......	......	......	0.90 .90 .90 4.00 1.50 3.00 2.00 2.00 2.00 .20 1.00 .45 2.00 2.00 .70 .60 1.50 1.00 1.85	......

Bidder.	Items.									
	11	12	13	14	15	16	17	18	19	20
Shoemaker & Busch, Philadelphia, Pa	$0.58	$0.07½	*$0.06	*$.02½	$0.06	*$0.29	*$0.06	$3.00	$0.09	......
George F. Muth & Co., Washington, D. C	*.55	*.07	......	.30	.06	.30	......	......	.50	......
Mackall Bros. & Flemer, Washington, D. C	.58	.07½	......	.03½	.10	.30½	......	*3.00	......	......
George Meier & Co., New York City	......	......	......	.04	*.15	......	......	......	*.70	*$1.15

* Contract awarded.

Schedule of bids and statement of contracts awarded and entered into, etc.—**Continued.**

HYDROGRAPHIC OFFICE—Continued.

Bidder.	Items.									
	21	22	23	24	25	26	27 †	28 †	29	30
Easton & Rupp, Washington, D. C										$7.60
Manhattan Supply Co., New York City			0.02\frac{7}{10}$							
Fred A. Schmidt, Washington, D. C			.02$\frac{1}{4}$ .02$\frac{1}{2}$ .02$\frac{7}{10}$ .02$\frac{3}{4}$ *.02$\frac{8}{100}$ .03$\frac{05}{100}$ .03$\frac{1}{2}$							8.00
Rufus P. Clarke, Washington, D. C		*$0.16		*$0.11						*7.40
Shoemaker & Busch, Philadelphia, Pa	*$\frac{58}{100}$									
George F. Muth & Co., Washington, D. C	$\frac{6}{10}$									7.60
Mackall Bros. & Flemer, Washington, D. C	$\frac{7}{10}$									
Ernest Kubel, Washington, D. C									.04$\frac{2}{10}$ .04$\frac{8}{10}$ .05 *.05$\frac{2}{10}$ .05$\frac{1}{2}$	
George Meier & Co., New York City					*$0.17	*$1.50				
Queen & Co., Philadelphia, Pa										15.75

Bidder.	Items.									
	31	32	33	34	35	36	37	38	39	40
Easton & Rupp, Washington, D. C				$2.25		$2.25 *1.75				$2.42
Fred A. Schmidt, Washington, D. C		$1.30 *1.75		*2.00	*$5.90	2.00	*$7.50	*$4.60		*$2.40
George W. Muth & Co., Washington, D. C		1.75		2.25		2.25	7.97	5.25		2.50
George Meier & Co., New York City		1.80	*$0.50						*$2.75	2.85
Queen & Co., Philadelphia, Pa				2.25		2.25	8.50	5.80		

Bidder.	Items.									
	41	42	43 †	44	45	46	47 †	48	49	50
Easton & Rupp, Washington, D. C	$2.42			$0.50	$0.18 .25				*$0.25	$0.70 .60
William H. Teepe, Washington, D. C										.90
Fred A. Schmidt, Washington, D. C	*2.40			*.48	.30			*$0.30	.25	.79
C. S. Braisted, New York City					*0.15					.27
Favor, Ruhl & Co., New York City								.06 .07 .08	.03 .04 .05	
Shoemaker & Busch, Philadelphia, Pa		$0.06								
George F. Muth & Co., Washington, D. C	2.50	.06		.48				.15	.20	.79
George Meier & Co., New York City	2.85									
Queen & Co., Philadelphia, Pa				.60	.40	*$1.00		.50	.30	*.90

* Contract awarded.

† No proposals received.

Schedule of bids and statement of contracts awarded and entered into, etc.—**Continued.**

HYDROGRAPHIC OFFICE—Continued.

Bidder.	Items.								
	51	52	53	54	55	56	57	58	59
Easton & Rupp, Washington, D. C	$0.70 .60	$0.70 .60	$0.70 .60	$0.70 .60	$0.29	*$0.04⅛	*$0.04⅛	$0.84 .90	*$4.25
Manhattan Supply Co., New York City								1.30	
William H. Teepe, Washington, D. C	*.90	*.90	*.90	*.90		1.60	3.60	1.10	
Fred A. Schmidt, Washington, D. C	.79	.79	.79	.79	.79	.79			
Joshua R. Buckelew, Washington, D. C								*.66 .99	5.00
C. S. Braisted, New York City	.50	.50	.50	.50					
George F. Muth & Co., Washington, D. C	.79	.79	.79	.79	.79				
Queen & Co., Philadelphia, Pa	.90	.90	.90	.90	*.90				

Bidder.	Items.								
	60	61	62	63	64	65	66	67	68
Easton & Rupp, Washington, D. C	*$4.25	$0.38 .40	$0.38 .40	$0.38 .40	$0.44 .48 .40	$0.50 .48 .40	$0.44 .48 .40	$0.44 .48 .40	$0.28 .29
Fred A. Schmidt, Washington, D. C		.48	.48	.48					
Joshua R. Buckelew, Washington, D. C	5.00								
C. S. Braisted, New York City		.29	*.29	*.29	*.25	*.25	*.25	*.25	*.28
Favor, Ruhl & Co., New York City		*.25	.53	.53	.49 .52 .42 .44	.54 .57 .42 .44	.49 .44	.57	.48

Bidder.	Items.								
	69	70	71	72	73	74	75	76	77
Easton & Rupp, Washington, D. C	$0.70	$0.38	*$0.65	$0.76	*$0.66	*$0.48	*$0.66	*$0.66	*$0.66
William H. Teepe, Washington, D. C	.78	.42	.70	*.67	1.00	1.00	1.00	1.00	1.00
Fred A. Schmidt, Washington, D. C	*.69	*.37							

Bidder.	Items.								
	78	79	80	81	82	83	84†	85	86
Easton & Rupp, Washington, D. C	*$0.46	*$0.36	*$0.37	*$0.42	*$0.14	*$0.01⅛		$0.02	$0.10
William H. Teepe, Washington, D. C			.45	.57	.17	.02⅜		*.01⅜	.15
Joshua R. Buckelew, Washington, D. C						.01⅛			
Shoemaker & Busch, Philadelphia, Pa									*.05
George F. Muth & Co., Washington, D. C									.05

* Contract awarded. † No proposals called for.

Schedule of bids and statement of contracts awarded and entered into, etc.—Continued.

HYDROGRAPHIC OFFICE—Continued.

Bidder.	Items.								
	87	88	89	90	91	92	93	94	95
Easton & Rupp, Washington, D.C	*$0.25 .32	*$0.05	*$0.03½	$0.08	$0.11	....	$0.24	*$5.60	*$1.50
R. Carter Ballantyne, Washington, D. C	....	....	....	*.06½	.12½ *.07½	....	....	....	....
Manhattan Supply Co., New York City	....	....	....	....	....	....	*.21	....	....
William H. Teepe, Washington, D. C	.70	.06	.05	.15	.20	*$0.10	.22	7.50	1.75 .95 .75
C. S. Braisted, New York City	.27	....	....	....	....	....	....	....	....
Shoemaker & Busch, Philadelphia, Pa	....	....	....	....	....	.07	.34	....	1.54
Mackall Bros. & Flemer, Washington, D. C	....	....	....	....	....	.05¾	....	....	1.56½

* Contract awarded.

Statement of proposals for the construction of one 30-knot torpedo boat of not less than 260 tons displacement, Torpedo Boat No. 19, received under the Department's advertisement of April 9, 1897.

Name and address of bidder.	For one vessel.	For two vessels (each).	Displacement.
			Tons.
George Lawley & Son, Boston, Mass	$280, 000	....	410
Union Iron Works, San Francisco, Cal	245, 250	$245, 250	330
	225, 000	220, 000	284
The Harlan & Hollingsworth Co., Wilmington, Del	B 214, 000	....	276
	A 235, 000	....	340
	C 212, 000	....	267
	A 235, 000	....	340
	*A 236, 000	233, 500	340
	B 215, 000	212, 500	276
	C 213, 000	210, 500	267
The William Cramp & Sons Ship and Engine Building Co., Philadelphia, Pa	$245, 000	....	340
Bath Iron Works, Bath, Me	217, 900	216, 000	300
Richard B. Painton, Williamsport, Pa	†225, 000	†250, 000	350
Columbian Iron Works and Dry Dock Co., Baltimore, Md	C 225, 000	....	260
	D 219, 000	....	260
John H. Dialogue & Son, Camden, N. J	269, 000	....	270
The Charles Hillman Ship and Engine Building Co., Philadelphia, Pa	230, 000	....	270

* Contract awarded. † Forty knots.

Statement of proposals for the construction of two 30-knot torpedo boats of not less than 230 tons displacement, Torpedo Boats Nos. 20 and 21, received under the Department's advertisement of April 9, 1897.

Name and address of bidder.	For one vessel.	For two vessels (each).	For two vessels.	Displacement.
				Tons.
Columbia Iron Works and Dry Dock Co., Baltimore, Md	A $210, 000	$207, 500	A and C $435, 000	A 230 C 260
	B 195, 000	192, 500	B and D 411, 500	B 230 D 260
Gas Engine and Power Co. and Charles L. Seabury & Co., consolidated, Morris Heights, New York City	* 210, 000	205, 000	....	235
John H. Dialogue & Son, Camden, N. J	243, 000	239, 000	....	243
Wolff & Zwicker Iron Works, Portland, Oreg	* 214, 500	212, 000	....	249

* Contract awarded.

Statement of proposal for the manufacture and delivery of 10,000 5-inch forged-steel shells.

Name and address of bidder.	Price per shell.
United States Projectile Co., Brooklyn, N. Y	*$5.59

* Contract awarded.

Statement of proposals for the construction of an experimental model tank and building at the navy-yard, Washington, D. C., received under the Department's advertisement of May 4, 1897.

Name and address of bidder.	Amount of bid.
Asphalt Block and Tile Co., Washington, D. C	$66,000.00
John Jacoby, Wilmington, Del	56,000.00
James J. Ryan, Philadelphia, Pa	61,800.00
Andrew Gleeson, Washington, D. C	54,328.00
William Rothwell, Washington, D. C	59,323.00
Daniel F. Mockabee, Washington, D. C	59,883.83
The National Contracting Co., New York	50,932.32
Baldwin & Peake, Washington, D. C	53,158.00
The Cranford Paving Co., Washington, D. C	61,000.00
John C. Robinson, Chicago, Ill	63,000.00
James R. F. Kelley (Kelley & Kelley), New York	51,730.00
Houston Construction Co., Philadelphia, Pa	85,803.00
The Penn Bridge Co., Beaver Falls, Pa	*50,000.00
John P. Pettijohn & Co., Lynchburg, Va	58,800.00
James L. Parsons, Washington, D. C	67,852.00

* Contract awarded.

Statement of proposals for steel gun forgings for B. L. rifles, received under the Department's advertisement of October 19, 1896.

Name and address of bidder.	Group A, 4 sets 13-inch.		Group B, 4 sets 13-inch.		Group C, 4 sets 13-inch.		Group D.			
							2 sets 13-inch.		1 set 12-inch.	
	Price per pound.	Time limit.	Price per pound.	Time limit.	Price per pound.	Time limit.	Price per pound.	Time limit.	Price per pound.	Time limit.
	Cents.	*Days.*	*Cents.*	*Days.*	*Cents.*	*Days.*	*Cents.*	*Days.*	*Cents.*	*Days.*
Midvale Steel Co., Philadelphia, Pa	23.8	240	23.8	340	*23.8	510	*23.8	......	*23.8	610
Bethlehem Iron Co., South Bethlehem, Pa.	*23.8	225	*23.8	365	23.8	490	23.8	595	23.8	560

* Contract awarded.

Statement of proposal received for the manufacture and delivery of 100 fully automatic heavy 1-pounder Maxim-Nordenfelt automatic guns, with accessories, spare parts, and mounts.

Name and address of bidder.	Price per gun complete.
Maxim-Nordenfelt Guns and Ammunition Co., Limited, London, England	*$2,375

* Contract awarded.

Statement of proposal received for the manufacture and delivery of launching apparatus for Whitehead 5-meter, 45-centimeter torpedoes.

Name and address of bidder.	Articles of torpedo-launching apparatus.	Number.	Price each.
E. W. Bliss Co., Brooklyn, N. Y.	Launching tubes complete, for powder discharge, 21 C. P., for boats, 20 broadside, lower deck.	41	*$945.00
	C. P. boat mounts, complete, with deck circles	21	*550.00
	Spoons for C. P. boat tubes	21	*200.00
	Mounts, broadside, lower deck, exclusive of deck circles.	20	*500.00
	Broadside connections (ball joints) for broadside lower-deck tubes.	20	*475.00
	Deck circles for mounts of broadside lower-deck tubes.	20	*200.00

* Contract awarded.

Statement of proposals received for the manufacture and delivery of 4,200 6-inch armor-piercing shell.

Name and address of bidder.	Price per pound.	Quantity of shell.
	Cents.	
Carpenter Steel Co., Reading, Pa	*.38	2,000
Midvale Steel Co., Philadelphia, Pa	*.38	1,100
Firth-Sterling Steel Co., Pittsburg, Pa	*.38	1,100

* Contract awarded.

Statement of proposals for the manufacture and delivery of 4-inch, 5-inch, 6-inch, and 13-inch armor-piercing projectiles.

Name and address of bidder.	4-inch.	Price per projectile.	5-inch.	Price per projectile.	6-inch.	Price per projectile.	13-inch.	Price per projectile.
Firth-Sterling Steel Co., Pittsburg, Pa	2,000	*$16.00	1,400	*$20.50	666	*$38.00	200	*$370.00
Midvale Steel Co., Philadelphia, Pa	2,000	*16.00	1,400	*20.50	667	*38.00	200	*370.00
Carpenter Steel Co., Reading, Pa	2,000	*16.00	1,400	*20.50	667	*38.00	200	*370.00

* Contract awarded.

Statement of proposals for furnishing ice and for washing the towels for the Navy Department and its bureaus and offices during the fiscal year ending June 30, 1898, received under the Department's advertisement of April 10, 1897.

ICE.

Name and address of bidder.	Price per 100 pounds.
	Cents.
Independent Ice Co., Washington D. C	*25
Hygienic Ice Co., Washington, D. C	27

WASHING TOWELS.

Name and address of bidder.	Price per hundred.
	Cents.
Cotton & Conrad, Washington, D. C	*48
Mrs. M. A. Weaver, Washington, D. C	54

* Contract awarded.

Statement of proposals for steel gun forgings for B. L. rifles, received under the Department's advertisement of July 15, 1897.

Name and address of bidder.	Group A, 6 sets 6-inch.		Group B, 25 sets 5-inch.		Group C, 15 sets 4-inch.	
	Price per pound.	Time limit.	Price per pound.	Time limit.	Price per pound.	Time limit.
	Cents.	*Days.*	*Cents.*	*Days.*	*Cents.*	*Days.*
Midvale Steel Co., Philadelphia, Pa	26½	200	26½	200	* 25½	260
Bethlehem Iron Co., South Bethlehem, Pa	* 26	180	* 26	450	26	300

* Contract awarded.

Statement of proposals for the purchase of waste paper of the Navy Department and its bureaus and offices during the fiscal year ending June 30, 1898, received under the Department's advertisement of May 26, 1897.

Name and address of bidder.	Price per 100 pounds.
	Cents.
S. Bensinger & Co., Washington, D. C	* 27
Jefferson L. Lenhart, Philadelphia, Pa	18

* Contract awarded.

Statement of proposals for gun forgings for B. L. rifles received under the Department's advertisement therefor.

Name and address of bidder.	30 sets of 4-inch.	
	Price per pound.	Time limit.
	Cents.	*Days.*
Bethlehem Iron Co., South Bethlehem, Pa	25¼	495
Benjamin Atha & Illingworth Co., Newark, N. J	* 24	210
Midvale Steel Co., Philadelphia, Pa	25½	522

* Contract awarded.

RECEIPTS FROM SALES OF GOVERNMENT PROPERTY.

Statement of deposits on account of sales of Government property, Navy Department, from November 1, 1896, to November 1, 1897.

[Compiled in the Office of Auditor for Navy Department, by direction of the Secretary of the Treasury.]

Date of deposit.	Place where deposited.	By whom deposited.	Nature of property sold.	Amount carried to miscellaneous receipts.	Amount credited to appropriation.	Total amount deposited.
1896.						
Nov. 4	New York	Sigsbee, C. D., commander	Nautical books and charts		$56.36	$56.36
4	First National Bank, of Erie, Pa	Ryan, E. D., passed assistant paymaster.	Condemned sweeping apparatus	$16.00		16.00
10	New York	Sigsbee, C. D., commander	Nautical books and charts		127.00	127.00
18	The Merchants' National Bank, Portland, Me.	Senter, Wm., & Co	do		12.07	12.07
21	United States Treasury	Lowry, H. B., quartermaster, U.S.M.C.	Condemned marine clothing	7.97		7.97
27	New York	Jewett, H. E., passed assistant paymaster.	Condemned coal	1,825.00		1,825.00
30	United States Treasury	Director Nautical Almanac Office	Publications Nautical Almanac Office		76.49	76.49
Dec. 4	do	Secretary of the Navy	Sale of U. S. S. Swatara	6,824.14		6,824.14
5	do	Sigsbee, C. D., commander	Nautical books and charts		151.00	151.00
4	San Francisco	Arnheim, S. S	Publications Nautical Almanac Office		18.00	18.00
9	United States Treasury	Lowry, H. B., quartermaster, U.S.M.C.	Condemned Government stores	3.30		3.80
15	New York	Kenny, A. S., pay inspector	Clothing sold the nautical school ship St. Marys.		823.10	823.10
16	United States Treasury	Lowry, H. B., quartermaster, U.S.M.C.	Condemned marine clothing	260.22		260.22
17	do	do	Condemned Government stores	11.28		11.28
18	do	Sigsbee, C. D., commander	Nautical books and charts		38.91	38.91
18	do	Lowry, H. B., quartermaster, U.S.M.C.	Condemned marine clothing	2.40		2.40
21	do	do	do	11.25		11.25
19	do	do	Condemned Government stores	1.15		1.15
22	do	do	Deserters' clothing	10.16		10.16
22	New York	Rupp, M., & Co	Nautical books and charts		240.76	240.76
28	United States Treasury	Lowry, H. B., quartermaster, U.S.M.C.	Condemned accouterments	.49		.49
30	First National Bank, of Erie, Pa	Ryan, E. D., passed assistant paymaster.	Scrap iron, ropes, hemp, etc	22.27		22.27
31	Norfolk National Bank, of Norfolk, Va.	Cochran, Geo., pay director	Live oak timber	797.80		797.80
30	New Orleans	Jewett, H. E., passed assistant paymaster.	Sectional dry dock	3,218.52		3,218.52
1897.						
Jan. 2	United States Treasury	Director Nautical Almanac Office	Publications Nautical Almanac Office		50.83	50.83
6	do	Sigsbee, C. D., commander	Nautical books and charts		167.71	167.71
8	New York	Boggs, L. G., paymaster	Clothing sold U. S. S. Morrill		88.07	88.07
4	San Francisco	Arnheim, S. S	Publications Nautical Almanac Office		15.00	15.00

	8	....do	....do	....do		15.00	15.00
	13	Boston	Thaxter, S., & Son	....do		36.75	36.75
	13	....do	....do	Nautical books and charts		53.96	53.96
	15	United States Treasury	Lowry, H.B., quartermaster, U.S.M.C.	Condemned marine clothing	4.25		4.25
	15	Baltimore	Loomis, J. P., paymaster	Nautical books and charts		68.75	68.75
	15	New York	Merrill, R., Sons	....do		7.65	7.65
	12	San Francisco	Arnheim, S. S.	....do		36.45	36.45
	15	New Orleans	Frigerio & Schully	....do		28.98	28.98
	15	....do	Woodward, Wight & Co.	....do		18.85	18.85
	16	....do	Frigerio, L., widow of	....do		3.90	3.90
	19	Philadelphia	Riggs Bros	....do		178.66	178.66
	19	....do	....do	Publications Nautical Almanac Office		41.70	41.70
	20	United States Treasury	Sigsbee, C. D., commander	Nautical books and charts		187.18	187.18
	15	San Francisco	Dillon & Co.	Publications Nautical Almanac Office		75.45	75.45
	27	The Merchants' National Bank, Portland, Me.	Senter, W., & Co	Nautical books and charts		12.49	12.49
	26	San Francisco	Dillon & Co.	....do		76.85	76.85
	30	United States Treasury	Sigsbee, C. D., commander	....do		75.68	75.68
Feb.	3	New York	Boggs, L. G., paymaster	Clothing sold First Battalion, L. S. N. G		8.08	8.08
	8	Philadelphia	Peterson, A., paymaster	Rent of naval-wharf property	200.00		200.00
	9	United States Treasury	Director Nautical Almanac Office	Publications Nautical Almanac Office		163.52	163.52
	10	New York	Sigsbee, C. D., commander	Nautical books and charts		130.00	130.00
	10	....do	Hendrickson, W. W., professor	Publications Nautical Almanac Office		57.00	57.00
	18	United States Treasury	Sigsbee, C. D., commander	Nautical books and charts		102.52	102.52
	27	....do	Lowry, H. B., quartermaster, U.S.M.C.	Condemned marine clothing	38.95		38.95
Mar.	2	....do	Sigsbee, C. D., commander	Nautical books and charts		79.21	79.21
	2	....do	....do	....do		98.33	98.33
	2	New York	Hendrickson, W. W., professor	Publications Nautical Almanac Office		82.55	82.55
	5	....do	Boggs, L. G., paymaster	Clothing sold Naval Reserve, New Jersey		430.14	430.14
	6	....do	....do	Clothing sold State of Connecticut		95.65	95.65
	12	United States Treasury	Frailey, L. A., pay inspector	Equipment stores sold State of New York for Naval Militia.		274.87	274.87
	16	....do	Lowry, H. B., quartermaster, U.S.M.C.	Condemned marine clothing and band instruments.	72.03		72.03
	18	New York	Boggs, L. G., paymaster	Horizontal stationary engine	70.25		70.25
	18	United States Treasury	Titcomb, W. P., disbursing agent	Coal sold to Albatross		1,166.40	1,166.40
	22	....do	Lowry, H. B., quartermaster, U.S.M.C.	Deserters' clothing	11.85		11.85
	25	New York	Boggs, L. G., paymaster	Clothing sold First Battalion Michigan State Naval Brigade.		26.14	26.14
	23	....do	....do	Scrap steel and scrap plate	890.56		890.56
	27	United States Treasury	Lowry, H. B., quartermaster, U.S.M.C.	Condemned Government stores	1.60		1.60
	29	....do	Director Nautical Almanac Office	Publications Nautical Almanac Office		148.95	148.95
	27	New Orleans	Jewett, H. E., passed assistant paymaster.	Condemned Government stores	13,145.90		13,145.90
	31	United States Treasury	Sigsbee, C. D., commander	Nautical books and charts		64.17	64.17
Apr.	2	Baltimore	O'Neal, M. V	....do		40.00	40.00
	9	United States Treasury	Sigsbee, C. D., commander	....do		34.44	34.44
	13	New York	Merrill, R., & Sons	....do		12.51	12.51
	14	Boston	Thaxter & Son	....do		63.15	63.15
	15	New York	Boggs, L. G., paymaster	Oil sold to William Cramp & Sons	5.69		5.69
	17	United States Treasury	Gheen, E. H., commander	Nautical books and charts		120.24	120.24
	13	San Francisco	Arnheim, S. S	....do		105.00	105.00

Statement of deposits on account of sales of Government property, Navy Department, from November 1, 1896, to November 1, 1897—Continued.

Date of deposit.	Place where deposited.	By whom deposited.	Nature of property sold.	Amount carried to miscellaneous receipts.	Amount credited to appropriation.	Total amount deposited.
1897.						
Apr. 15	New Orleans	Frigerio & Schully	Nautical books and charts		$10.75	$10.75
20	Philadelphia	Riggs & Bros	....do		34.04	34.04
16	New York	Boggs, L. G., paymaster	Paints, oils, etc., sold First Naval Battalion, New York.		19.46	19.46
19	New Orleans	Frigerio, Louis, widow	Nautical books and charts		7.25	7.25
22	New York	Negus, J. S. & J. D	....do		200.00	200.00
23	....do	Boggs, L. G., paymaster	Clothing sold Revenue-Cutter Service		245.00	245.00
21	New Orleans	Woodward, Wight & Co	Nautical books and charts		26.56	26.56
23	United States Treasury	Craig, J. E., commander	....do		101.26	101.26
26	New York	Boggs, L. G., paymaster	Clothing sold to nautical school ship St. Marys		15.95	15.95
26	United States Treasury	Director Nautical Almanac Office	Publications Nautical Almanac Office		24.67	24.67
30	....do	Craig, J. E., commander	Nautical books and charts		23.53	23.53
28	San Francisco	Dillon & Co	....do		49.75	49.75
May 1	New York	Boggs, L. G., paymaster	Clothing sold revenue steamer Morrill		26.76	26.76
4	United States Treasury	Lowry, H. B., quartermaster, U.S.M.C.	Sale of harness and deserters' clothing	$16.60		16.60
10	New York	Jewett, H. E., passed assistant paymaster.	Coal sold H. M. S. Rambler		187.00	187.00
12	United States Treasury	Croxall, M. L., acting disbursing clerk	One horse	35.00		35.00
10	The Merchants' National Bank, of Portland, Me.	Senter, Wm., & Co	Nautical books and charts		5.14	5.14
19	United States Treasury	Craig, J. E., commander	....do		62.29	62.29
19	....do	Morgan, A. G., disbursing agent	Castings furnished Bureau of Engraving and Printing.		187.54	187.54
20	New York	Rupp, M., & Co	Nautical books and charts		218.56	218.56
22	United States Treasury	Croxall, M. L., acting disbursing clerk	One horse	90.00		90.00
28	Baltimore	Loomis, J. P., paymaster	Nautical books and charts		84.38	84.38
June 3	New York	Boggs, L. G., paymaster	Proceeds sale of condemned Government stores	8,552.92	2,071.77	10,624.69
9	....do	....do	....do		16,443.89	16,443.89
21	....do	....do	....do		17,401.61	17,401.61
7	Boston	Beaman, G. W., pay inspector	Russian and American tow	1,742.55		1,742.55
8	New York	Craig, J. E., commander	Nautical books and charts		110.60	110.60
4	United States Treasury	....do	....do		69.00	69.00
8	New York	Boggs, L. G., paymaster	Old boilers and iron	16.00		16.00
10	....do	Jewett, H. E., passed assistant paymaster.	Coal sold to H. M. S. Pallas		646.00	646.00
15	Philadelphia	Woodhull, W. W., pay inspector	Rent of naval wharf property	100.00		100.00
16	San Francisco	Arnheim, S. S	Publications Nautical Almanac Office		8.40	8.40
23	New York	Boggs, L. G., paymaster	One horse	35.00		35.00
28	United States Treasury	Director Nautical Almanac Office	Publications Nautical Almanac Office		15.65	15.65
July 7	San Francisco	Arnheim, S. S	....do		3.00	3.00

	14	United States Treasury	Director Nautical Almanac Office	....do		52.00	52.00
	14	....do	....do	....do		70.20	70.20
	16	....do	Craig, J. E., commander	Nautical books and charts		101.85	101.85
	16	Boston	Thaxter, S., & Son	Publications Nautical Almanac Office		47.10	47.10
	15	United States Treasury	O'Neil, Chas., Chief Bureau Ordnance	100 base fuses sold American Ordnance Co		18.91	18.91
	19	New York	Merrill's, R., Sons	Nautical books and charts		15.76	15.76
	20	Boston	Thaxter, S., & Son	....do		122.23	122.23
	20	San Francisco	Dillon & Co	Publications Nautical Almanac Office		35.85	35.85
	20	New Orleans	Woodward, Wight & Co	Nautical books and charts		6.20	6.20
	20	....do	Frigerio, L., widow of	....do		11.85	11.85
	22	San Francisco	Arnheim, S. S	....do		158.94	158.94
	26	New Orleans	Frigerio & Schully	Nautical books and charts		14.13	14.13
	30	Baltimore	O'Neal, M. V	....do		35.00	35.00
	30	Philadelphia	Riggs & Bros	....do		154.16	154.16
	30	United States Treasury	Morgan, Alex. G., disbursing clerk	Castings furnished Bureau of Engraving and Printing.		20.85	20.85
Aug.	2	....do	Craig, J. E., commander	Nautical books and charts		230.68	230.88
	4	....do	Stickney, F. H., disbursing clerk	Sale of carriage	36.00		36.00
	11	New York	Craig, J. E., commander	Nautical books and charts		268.00	268.00
	11	....do	Newcomb, S., professor	Publications Nautical Almanac Office		44.85	44.85
	13	....do	Boggs, L. G., paymaster	Clothing sold naval militia State of Illinois, State of Ohio, and revenue steamer Gresham.		1,772.06	1,772.06
	14	United States Treasury	Director Nautical Almanac Office	Publications Nautical Almanac Office		65.55	65.55
	13	San Francisco	Dillon & Co	Nautical books and charts		95.15	95.15
	20	United States Treasury	Frailey, L. A., pay inspector	Condemned Government stores	7.85	21,901.17	21,909.02
	25	The Merchants' National Bank, Portland, Me.	Senter, Wm., & Co	Nautical books and charts		16.33	16.83
	31	United States Treasury	Craig, J. E., commander	....do		174.72	174.72
	27	New York	Kenny, A. S., pay inspector	Boat cloth sold to the school ship St. Marys		10.86	10.86
	30	United States Treasury	Craighill, W. E., captain, U. S. A	Repairing dredge for Engineer Department, U. S. A.		759.55	759.55
Sept.	10	New York	Craig, J. E., commander	Nautical books and charts		63.36	63.36
	10	....do	Hendrickson, W. W., professor	Publications Nautical Almanac Office		35.40	35.40
	10	United States Treasury	O'Neil, Chas., Chief Bureau Ordnance	Copper cylinders sold American Ordnance Co		117.60	117.60
	15	New York	Wright, H. T., pay inspector	Clothing sold Revenue-Cutter Service		15.58	15.58
	15	United States Treasury	Director Nautical Almanac Office	Publications Nautical Almanac Office		70.95	70.95
	16	New York	Rupp, M., & Co	Nautical books and charts		127.13	127.13
	25	First National Bank of Newport, R. I	Bellows, E., pay inspector	Clothing sold Naval Reserve, State of Illinois		101.85	101.85
	27	New York	Wright, H. T., pay inspector	Clothing sold U. S. R. S. Morrill and First Battalion Florida Naval Militia.		68.13	68.13
	28	United States Treasury	Denny, F. L., quartermaster, U. S. M. C	Condemned marine clothing	13.40		13.40
	24	....do	....do	Condemned stores, furniture, etc	156.65		156.65
	29	....do	....do	One horse	24.30		24.30
	29	....do	Titcomb, W. P., disbursing agent	Repairs to machinery, Albatross		156.85	156.85
	28	San Francisco	Pascol, J. C	Publications Nautical Almanac Office		6.00	6.00
Oct.	1	United States Treasury	Denny, F. L., quartermaster, U. S. M. C	Fuel sold officers, Marine Corps		95.16	95.16
	1	....do	Craig, J. E., commander	Nautical books and charts		52.70	52.70
	2	Baltimore	Loomis, J. P., paymaster	500 white hats furnished cadets		185.00	185.00
	2	....do	....do	500 knife laniards furnished cadets		47.50	47.50
	1	New Orleans	Woodward, Wight & Co	Nautical books and charts		6.26	6.26
	9	New York	Wright, H. T., pay inspector	Clothing sold revenue steamer Gresham		117.03	117.03
	11	United States Treasury	Director Nautical Almanac Office	Publications Nautical Almanac Office		29.80	29.80

Statement of deposits on account of sales of Government property, Navy Department, from November 1, 1896, to November 1, 1897—Continued.

Date of deposit.	Place where deposited.	By whom deposited.	Nature of property sold.	Amount credited to miscellaneous receipts.	Amount credited to appropriation.	Total amount deposited.
1897.						
Oct. 13	New York	Merrill's, R., Sons	Nautical books and charts		$5.13	$5.13
9	San Francisco	Arnheim, S. S.	Publications Nautical Almanac Office		30.00	30.00
13	United States Treasury	O'Neil, Chas., Chief Bureau Ordnance	Smokeless powder, furnished Winchester Repeating Arms Company.		109.81	109.81
7	Washington National Bank of Seattle	Williams, W. W., pay director	For docking steamer Portland	$302.02	83.12	385.14
15	New York	Wright, H. T., pay inspector	Condemned Government stores	292.09		292.09
19	United States Treasury	Craig, J. E., commander	Nautical books and charts		173.43	173.43
13	San Francisco	Dillon & Co	do		61.28	61.28
15	New Orleans	Frigerio & Schully	do		19.45	19.45
20	Boston	Thaxter S., & Son	do		86.85	86.85
22	United States Treasury	Craig, J. E., commander	do		119.60	119.60
22	do	Denny, F. L., quartermaster U. S. M. C	Condemned marine clothing and accouterments	15.64		15.64
18	San Francisco	Arnheim, S. S.	Nautical books and charts		37.75	37.75
26	New Orleans	Frigerio, Louis, widow of	do		11.30	11.30
25	New York	Wright, H. T., pay inspector	Condemned Government stores	3,731.57		3,731.57
28	United States Treasury	Craig, J. E., commander	Nautical books and charts		185.00	185.00
	Total			42,620.62	72,709.45	115,330.07

REPORT

OF THE

JUDGE-ADVOCATE-GENERAL OF THE NAVY.

NAVY DEPARTMENT,
OFFICE OF THE JUDGE-ADVOCATE-GENERAL,
Washington, September 30, 1897.

SIR: In compliance with the Department's order of the 6th of July last, I have the honor to submit herewith a report of the operations of this office for the fiscal year ending June 30, 1897.

The constant and almost uniform increase in the volume of business transacted annually, which has been the subject of comment in previous reports, has continued during the past year. This increase does not appear to be due to an unusual development of activity in any special class of business, but seems rather to be that general augmentation of work of every character, which doubtless is a natural consequence of the recent growth of the Navy.

While the increase mentioned has made itself felt in the pressure it has exerted in every branch of the business of the office, it is difficult to determine with entire accuracy the precise percentage of such increase, on account of the nature of the matters handled, as a single question may sometimes involve extended research, while in other cases a large number of communications may be disposed of with comparative facility. The number of separate items of business dealt with during the year is therefore no certain criterion of the work actually performed, but it affords perhaps the most available means by which the business of one year can be compared with that of another. An examination of the record of papers received by this office during the past ten years shows that there has been a very nearly uniform increase of business throughout that period, as follows:

Papers received calendar year—		Papers received calendar year—	
1887	2,159	1892	5,055
1888	4,400	1893	5,390
1889	4,907	1894	5,831
1890	4,326	1895	5,752
1891	5,204	1896	6,112

By reference to the above statement it will be seen that the business of the office, as indicated by the number of papers received, is now nearly three times as great as it was in 1887. It would be shown to be more than three times as great if all the papers of the character entered in 1887 were now placed upon the key. In 1890, however, separate books were opened for the numerous desertion cases, which had materially swelled the number of letters received in the two preceding years;

and subsequently, in 1895, the separate entry upon the key of a considerable number of papers of a formal character was discontinued. These changes in the manner of keeping the records explain the apparent falling off in 1890 and 1895, respectively, as shown by the above table. It may be added that up to September 1 of the current year the number of papers received exceeds that for the same period of last year by 520, thus indicating that the rate of increase, as was to have been expected, has continued without abatement up to the present time.

The above statement is given with some particularity because it has been found necessary to include in the annual estimate, copies of which accompany this report, a request for the allowance of one additional law and contract clerk, at a salary of $1,600. The service for which this additional clerk is needed is important, and it is not believed that the allowance of a clerkship of a lesser grade would meet the requirements of the case. The person appointed to this position, if the estimate in question should be favorably acted upon by the Department and by Congress, should be capable of preparing and construing contracts, and of drafting official correspondence; should be a graduate of law, and should possess sufficient experience, ability, and judgment to examine questions of departmental and naval law, and to reach a conclusion thereupon which can be adopted by the head of the office and by the Department.

It may be proper to add in this connection that the business of the office has increased more than 300 per cent during the past ten years, while the increase in the appropriations in the same time has amounted to hardly more than 50 per cent. In 1887 the amount appropriated for the Judge-Advocate-General's Office was $6,460, while for the present fiscal year the amount appropriated is $10,360.

DESERTION CASES.—EXTENSION OF PROVISIONS OF ACT OF AUGUST 14, 1888.

The offense of desertion has always been regarded by military and naval authorities as particularly odious, and the punishments, forfeitures, and disqualifications to which deserters render themselves liable are severe. Under existing law the Secretary of the Navy is without authority to remove a charge of desertion standing upon the records against the name of an enlisted man, unless it appears conclusively that such charge has been erroneously entered or retained. The history of this country, however, offers a somewhat anomalous example of what might be called technical desertion on a large scale, unattended by the circumstances which cause odium to attach to the offense.

In the spring of 1865 a very considerable number of volunteers, who had rendered faithful service during the critical period of the war, realizing upon the conclusion of active hostilities that their duties were practically over and that the purposes for which they had enlisted had been honorably fulfilled, and being impatient to resume the pursuits of civil life, and having in very many cases received leave of absence pending discharge, returned to their homes without awaiting the formal disbandment of the national forces. It thus happened that during the months of May, June, and July, 1865, while the federal armies and fleets were being reduced from a war to a peace footing, thousands of veteran soldiers, sailors, and marines who had faithfully performed their duty throughout the whole or a considerable portion of the war, left the service without the formality of a discharge.

The rigor of military law and usage required that the mark of desertion be entered opposite the names of those persons who had so absented themselves from their regiments, stations, or vessels without due authority, and they were accordingly marked as deserters. In later years, upon making application for pension, endeavoring to secure municipal employment, or seeking admission to veteran organizations or benevolent societies, such men were surprised to learn that their failure to obtain regular discharge from the Army or the Navy, as the case might be, had left a stain upon their records which stood in the way of success.

Recognizing the equities of this class of deserters, Congress, August 14, 1888, passed "An act to relieve certain appointed or enlisted men of the Navy and Marine Corps from the charge of desertion," which act conferred upon the Secretary of the Navy the power, in his discretion, to remove the charge in cases where it appeared that the applicant had deserted after May 1, 1865, provided he had rendered faithful service for a period of at least six months prior to that date. The beneficial provisions of this act were, however, limited to five years from the date of its approval, and accordingly ceased to be operative August 14, 1893. Since that date the Department has been compelled to decline to take action upon all applications for relief received from the class of persons for whose benefit the act was intended, but who did not forward their papers in time. Many cases thus rejected are in all essential features as meritorious as those in which favorable action had been taken during the life of the act.

By the act of March 2, 1889, entitled "An act for the relief of certain volunteer and regular soldiers of the late war and the war with Mexico," the Secretary of War was empowered to grant relief in meritorious cases falling within the category above mentioned, and on March 2, 1895, Congress removed all limitations of time within which applications for relief may be received and acted upon by the Secretary of War in cases of soldiers thus nominally, but not equitably, charged with desertion. No similar extension has, however, been made with respect to the Navy, and in the present state of the law, therefore, soldiers who left their regiments irregularly in the spring and summer of 1865 may be and are relieved from the charge of desertion, while sailors and marines equally deserving are under like circumstances denied relief.

This appears to be an unjust discrimination against a most worthy class of veterans, and it is respectfully recommended therefore that the attention of Congress be invited to this subject with a view to the enactment of such legislation as will extend to men who served faithfully in the Navy and Marine Corps until the close of the war the privileges respecting the removal from their records of the mark of desertion enjoyed by men who rendered service in the Army. In my judgment this can best be done by an act making the provisions of the act of August 14, 1888, on this subject, permanent.

PENSIONS OF BENEFICIARIES OF THE NAVAL HOME, PHILADELPHIA.

Section 4813 of the Revised Statutes provides that whenever any naval officer, seaman, or marine entitled to a pension is admitted to a naval hospital, the pension, during his continuance in the hospital, shall be paid to the Secretary of the Navy and deducted from the account of such pensioner. Under this provision of law it has been the practice during the last twenty-five years, if not longer, upon the admission of a beneficiary to the Naval Home in Philadelphia, to turn over to the credit of the naval-hospital fund any pension to which he would otherwise have been entitled during the term of his residence at the Home. As the result a very considerable sum is annually transferred from the naval pension fund to the credit of the naval-hospital fund, the former being depleted and the latter correspondingly augmented, by this practice.

The report of the governor of the Home shows that during the fiscal year ending June 30, 1897, no less than $17,678.63 was thus credited to the naval-hospital fund on account of beneficiaries residing at the Home, the expense of whose maintenance was defrayed from the naval-pension fund. These funds being both beneficent in character, the matter has not heretofore been regarded as serious, although the Chief of the Bureau of Yards and Docks, who is charged with the duty of supervising the affairs of the Naval Home, has on several occasions protested against the diversion of the amounts in question from the naval-pension fund, and it would seem entirely proper that the requirements of section 4813 be so far modified as to authorize the return to the naval-pension fund of all pensions stopped during the residence of a pensioner at the Naval Home.

The present practice of enlarging the naval hospital fund at the expense of the naval pension fund seems to have been incidentally brought about by provisions of law not intended to have that effect. The Naval Home at Philadelphia was established under authority of the act approved February 26, 1811 (Stat. L., vol. 2, p. 650), the title of which was "An act establishing navy hospitals," and the expense of establishing the Naval Home was, under provisions of law now embodied in section 4810 of the Revised Statutes, defrayed from the fund for naval hospitals. Subsequently, by a clause contained in the naval act approved March 3, 1871, it was provided that appropriations for the support of the Naval Asylum, the name of which has since been changed to the Naval Home, should be charged to and paid from the income of the naval pension fund; but no corresponding change has been made in the provisions of law now embraced in section 4813.

It being the policy of the Department to encourage continuous service on the part of enlisted men, the number of those entitled to relief from the naval pension fund will doubtless steadily increase, and it may become important to husband the fund accordingly. In any event, it does not appear equitable that the naval hospital fund should be credited with the amount of pensions allowed to persons receiving the benefit of an institution the expenses of which are defrayed from the naval pension fund. It is accordingly recommended that Congress be asked to so modify section 4813 of the Revised Statutes as to permit the return to the naval pension fund of all unused pension money accruing from the sources indicated.

RETIREMENT OF ENLISTED MEN IN THE NAVY.

By the act approved September 30, 1890, amending the act of February 14, 1885, it is provided:

> That when an enlisted man has served as such thirty years in the United States Army or Marine Corps, either as private or noncommissioned officer, or both, he shall, by application to the President, be placed on the retired list hereby created with the rank held by him at the date of retirement, and he shall receive thereafter seventy-five per centum of the pay and allowances of the rank upon which he was retired: *Provided*, That if said enlisted man had war service with the Army in the field, or in the Navy or Marine Corps in active service, either as volunteer or regular, during the war of the rebellion, such war service shall be computed as double time in computing the thirty years necessary to entitle him to be retired.

The provision of law above quoted is by its terms expressly limited to the Army and Marine Corps, and has no application to the Navy. This is to be regretted, inasmuch as the certainty of provision for old age by an honorable retirement is a powerful inducement to good men to enter and, having entered, to remain in the service; and, moreover, it is not just that legislation should thus discriminate against the sailors serving on our ships of war.

There appears to be no valid reason why the enlisted force of the Navy should not be placed on the same footing in this particular as that of the Army and Marine Corps. Legislation of this character would, in my opinion, be of great benefit to the service, inasmuch as the hope of such reward would prove an incentive to the men to make good records, and their general efficiency and value to the service would thereby be greatly enhanced.

CIVILIAN WITNESSES BEFORE NAVAL COURTS.

It very frequently happens when a case is brought to trial before a naval general court-martial that evidence of importance to the prosecution or the defense rests entirely within the knowledge of civilian witnesses. This does not occur, of course, when offenses are committed at sea; but, as a matter of fact, a proportionately small number only of the greater offenses for which officers and men are annually brought to trial by courts-martial are committed during the activities of a cruise.

It is when vessels are in port, or while officers and men are on duty at navy-yards and stations, and men are ashore, whether on liberty or in the performance of some duty, that special temptations are presented and offenses are committed, the essential features of which are known to civilians only.

It is highly important, in all relations with civilians, that every proper requirement of discipline should be observed by persons in the Navy, and particularly that discredit should not be brought upon the service by allowing offenses committed by officers or men, in the presence of civilians or resting in their knowledge, to go unpunished. Procedure in this class of cases is, however, often embarrassed by the fact that under existing law naval courts have no power to compel the attendance or to secure the testimony of civilian witnesses. It is true that these courts may issue a subpœna to such witnesses, but if the subpœna is disregarded there is no remedy.

It rarely happens that witnesses are desirous of appearing and giving testimony before any court, and being able to avoid so doing where courts-martial are concerned, they frequently, whether from a willingness to oblige the parties concerned or from a natural reluctance to perform an unpleasant duty, decline to give their testimony, and a failure of justice results. This has happened in instances of importance, and it occurs every year in minor cases that the administration of justice is thus hampered. The guilty escape punishment or are not brought to trial because of the want of evidence essential to their conviction, and it is not an overstatement to say that innocent persons may occasionally be convicted because of the absence of evidence necessary to explain or controvert testimony introduced by the prosecution. Naval courts, created by law and clothed with jurisdiction to impose heavy fines and penalties, are yet denied the power to obtain all the evidence deemed necessary to a just determination of the matters upon which it is their duty to pass judgment. Such a state of affairs necessarily exerts a demoralizing influence upon the service. It is accordingly recommended that Congress be asked to enact a provision of law which will relieve our courts of this embarrassment and enable them to obtain the testimony of civilian witnesses when essential to the proper adjudication of cases over which they have jurisdiction.

It is suggested that, in the legislation recommended, punishment be provided for in cases where a person, being duly summoned as a witness before a court of inquiry or general court-martial, makes default in attending; or, being in attendance as a witness, refuses to take the oath legally required by the court; or refuses to produce any documents in his power or control, legally required by the court to be produced by him; or refuses to answer any question to which the court may legally require an answer.

It is not essential, in order to provide a remedy for the evil under consideration, that courts of inquiry and general courts-martial be given direct jurisdiction to punish for contempt civilian witnesses who are guilty of any of the offenses above indicated. It would doubtless be entirely sufficient if naval courts were authorized to certify cases of contempt to the nearest United States court, to be by such court dealt with in the discretion of the court in like manner as if the offense had been committed in a proceeding before itself, and appropriate punishment imposed after examination of any witnesses that might be produced for or against the person charged with contempt, and after hearing any statements which they might offer or other evidence which they might adduce in defense.

It is interesting to note, in this connection, that a method of dealing with this question very similar to that herein outlined has been adopted by Great Britain. (See article 126, British army Act.)

DEPOSITIONS.

Article 91 of the Articles of War reads as follows:

> The depositions of witnesses residing beyond the limits of the State, Territory, or district in which any military court may be ordered to sit, if taken on reasonable notice to the opposite party and duly authenticated, may be read in evidence before such court in cases not capital.

While the provision of law above quoted is applicable to the Army only, the reasons which prompted its enactment apply with equal if not greater force to the Navy. The operations of the latter branch of the service extend over a much wider field. In the case of the Army it may be assumed that under ordinary circumstances witnesses can be found within the limits of the United States, inasmuch as, in time of peace at least, the Army does not go beyond our national borders. Witnesses serving on board naval vessels, however, are subject at any moment to be ordered to distant stations in foreign waters, rendering their recall for the purpose of giving testimony a matter of expense and inconvenience. In such cases it becomes difficult to determine whether the interests of the service will be best promoted by dispensing with the testimony of witnesses serving on remote stations, and thus, perhaps, causing a failure of justice, or by ordering them to attend and testify, necessarily incurring heavy expense, loss of time, and inconvenience. The obvious remedy is the enactment with respect to the Navy of some such provision as that above quoted which has for many years past authorized the use of depositions by military courts.

The draft of a provision of law designed to meet the requirements of the case was embodied in a bill introduced in the last Congress by Mr. Hilborn, of California. This proposed measure was approved by the

Department in the form in which it was introduced, but it failed to become a law. It provided that—

> The depositions of witnesses stationed or residing at such a distance from the place where a naval court is held, or who are under orders and about to go to such a distance that it is not, in the judgment of such court, practicable to secure their personal attendance without incurring unreasonable expense and loss of time, if taken on reasonable notice to the opposite party and duly authenticated, may be put in evidence before such court in cases not capital.

EXAMINATION OF CHIEF ENGINEERS BEFORE PROMOTION.

Sections 1493, 1496, and 1497 of the Revised Statutes and other provisions of law on the subject require, generally, that all officers of the Navy on the active list, upon becoming eligible to promotion, be subjected to examination to determine their physical, mental, moral, and professional qualifications for the performance of all the duties at sea of the grade to which they are to be advanced. In my last annual report attention was invited to the fact that passed assistant surgeons when promoted to surgeon, and chief engineers when promoted to relative rank corresponding to the grade of commander and captain, were not subjected to examination, such advancement in rank not being held to involve change of grade, thus forming an exception to a general rule which has in its practical application produced excellent results.

By special act, approved February 13, 1897, it was provided that passed assistant surgeons then borne upon the Navy Register should be commissioned as such by the President, and that "hereafter assistant surgeons shall be regularly promoted and commissioned as passed assistant surgeons, and passed assistant surgeons as surgeons, subject to such examinations as may be prescribed by the Secretary of the Navy: *Provided, however*, That no examination of passed assistant surgeons shall be ordered until the expiration of six months from the passage of this act, during which time promotions shall be made as now provided by law." This act, in so far as it relates to the examination of passed assistant surgeons, went into effect on the 13th of August last, and it is believed that it will tend materially to promote the efficiency of the medical corps of the Navy. The considerations which prompted the enactment of this provision of law with respect to the examination of passed assistant surgeons apply with equal force to the engineer officers above referred to, and it is accordingly recommended, in order that the statutes on the subject of promotion in the Navy may be made more uniform in their operation, that Congress be asked to extend the law on the subject so as to require the examination of chief engineers when promoted to the relative rank of commander and of captain. It is understood that this suggestion meets the cordial concurrence of the chief of the Bureau of Steam Engineering.

Should this recommendation be adopted, it is believed that the scope of the inquiries to be made by the examining boards with respect to professional fitness should remain discretionary with the board, and may very properly be assimilated to the examination of officers of like relative rank whose examination is now a prerequisite to promotion, it not being the purpose of the proposed change to bring about the institution in practice, in the case of officers of the higher grade, of a system of examinations scholastic in character. A physical examination of these officers, like those of similar rank in the line, Pay and Medical Corps, is deemed specially important.

NAVAL EXAMINING AND RETIRING BOARDS.

The several provisions relating to naval examining and retiring boards, respectively, have been enacted at different times and without reference to each other. As a consequence, the methods of procedure which they prescribe, while embodying many excellent features, are not the simplest or most desirable that could be devised. Under the present system, when an officer appears before a naval examining board as a candidate for promotion, it becomes the duty of that board to examine into his mental, moral, and professional fitness to perform all the duties at sea of the grade to which he seeks advancement, and it is at the same time further required that he shall be examined by a board of naval surgeons and pronounced physically qualified to perform all the duties which would properly devolve upon him when serving at sea in the next higher grade.

Should the board of surgeons making such physical examination report adversely, the candidate is in due course subsequently ordered to appear before a retiring board, composed of not more than nine nor less than five commissioned officers, two-fifths of whom are members of the Medical Corps of the Navy (sec. 1448, R. S.), where he undergoes a second physical examination, the object of which is to determine whether he is incapacitated for active service and, if so, whether his incapacity is the result of an incident of the service. It therefore happens that the facts and evidence passed upon by the previous board must be again gone over by the retiring board, and the work of examination being thus duplicated, delay and loss to the service is thereby incurred. It is, furthermore, always possible and has not infrequently happened that the two boards may reach opposite conclusions, in which case further delay and confusion result. Obviously, it is unnecessary that the physical condition of a candidate should be examined into and reported upon by two distinct boards.

An entirely simple and natural method would seem to be the organization of a single board to act as an examining board, but authorized, whenever it appears that an officer is not qualified for promotion, to proceed at once to determine all questions connected with his retirement. In such a case the evidence of every kind necessary to be considered is either already before the board or can readily be obtained. If this method were adopted it is deemed desirable that such board should be constituted in accordance with the method prescribed by the act approved October 1, 1890, for boards of like character in the case of examination for promotion in the Army, which act was, July 28, 1892, by a separate provision of law, made applicable also to the Marine Corps.

Under the provisions of the last-mentioned act this Department has formulated rules for the examination for promotion of officers of the Marine Corps, from which the following excerpts are taken for the purpose of illustrating the simplification of the method over that set forth above:

> Examination shall be made under the following heads:
>
> (1) Physical and mental qualifications.
>
> (2) Character and professional efficiency.
>
> The medical members of the board will each personally examine the candidate as to his physical and mental condition, and also his medical record as furnished by the Bureau of Medicine and Surgery, Navy Department, and shall certify to the board that such examinations have been made and that the candidate is (or is not) physically and mentally qualified for the efficient performance of all the duties of the next higher grade in the Marine Corps.

Should the candidate be found by the full board to be physically or mentally disqualified for promotion, it will conclude the examination by reporting the cause or causes of his disability, and whether such disability was contracted in the line of duty. For the purpose of this inquiry, the proceedings of the board shall conform to those of a retiring board, and officers so found to be mentally or physically disqualified for promotion will not be examined as to character and professional efficiency.

Should the candidate be found by the full board to be mentally and physically qualified for promotion, the examination shall proceed under the second head, the medical officers of the board being excused from further attendance upon the sessions thereof. (See General Order No. 478.)

The recommendation made in preceding annual reports, that the provisions of the act of October 1, 1890, be further extended so as to include the naval service, is renewed. This act, now applicable, as above stated, to the Army and Marine Corps, was drawn after consideration of the statutes on the subject relating to the Navy, and, while preserving their essential features, embodies improvements suggested by the practical application of existing laws in this branch of the service.

SENTENCES INVOLVING "EXTRA POLICE DUTIES" AND CONFINEMENT ON "BREAD AND WATER."

Two important changes in the policy of the Department affecting sentences imposed by summary courts-martial have recently been made. The first of these, communicated to the service by General Order No. 470, dated March 22, 1897, discourages the imposition by summary courts, except in extreme cases, of the maximum deprivation of full rations allowed by the regulations where the sentence of solitary confinement, in irons, on bread and water, is imposed. This order was issued because the Department had noted the frequency with which sentences involving the allowance of a full ration every fifth day only were imposed, and courts were counseled to restrict this form of punishment in all ordinary cases to a shorter interval.

Another important change from which good results are expected is that promulgated in General Order No. 472, dated April 20, 1897, in which the attention of all persons required to perform duty in connection with summary courts-martial is called to the undesirability of the imposition or approval of sentences involving extra police duties, except in particularly aggravated cases. This order was issued by the Department after consultation with and report from a number of officers of rank and experience in the service, who were almost unanimously of the opinion that sentences involving extra police duties in addition to other punishments are unsatisfactory in practice, and exert in some degree a demoralizing influence upon the discipline of the service, resulting in the continuous nagging of the offender and imposing upon those supervising the execution of such sentences constant and burdensome watchfulness.

These remarks have application to such sentences only as are to be executed on board ship or at a navy-yard, in the surroundings of active duty. As set forth under the next heading, a very different case is presented when men are confined at a naval prison, where they are at all times under close surveillance, do not mingle with persons not under sentence, and are in need of exercise of that character. Under such circumstances, the above-mentioned objections to the imposition of police duties as a portion of the sentence do not exist.

NAVAL PRISONS.

In June last I visited and made a careful inspection of the naval prison at Boston, Mass., and found it to be in excellent condition, both from a sanitary and disciplinary point of view. The naval prison at Mare Island is reported to be in like good condition.

The system of assigning work to prisoners, which has been adopted in pursuance of the recommendation contained in my report for the year 1894, and the Department's views in regard to which were set forth in General Order, No. 440, dated January 14, 1895, advising general courts-martial to impose police duties as a part of the punishment of men undergoing sentences of confinement, has, as above intimated, been found to be an excellent one, not only because by that means the yard can be kept clean and other work of a police character done, but because the health of the men has been much benefited by the performance of labor, particularly by that portion of the work which is required to be done in the open air.

The addition to the Boston prison of a second story, in which the walls and ceilings of the cells are made of open ironwork, constitutes a very material improvement; and under the direction of the Bureau of Yards and Docks the old cells on the first floor are to be converted into open ironwork cells similar to those on the second floor.

The prison yard, where the prisoners are exercised, is to be enlarged and paved with asphalt, it being, during a portion of the year, very damp.

The Bureau of Equipment has recently provided the prison with a ship's library, which adds materially to the comfort of the prisoners.

The foregoing improvements were made in accordance with the recommendation of the commanding officer of the prison.

CLASSIFICATION OF VESSELS.

By sections 1529 and 1530 of the Revised Statutes, it is provided that "the vessels of the Navy of the United States shall be divided into four classes," steamships of 40 guns or more being classed as first rates, those of 20 guns and under 40 as second rates, and all those of less than 20 guns as third rates; first rates to be commanded as nearly as may be by commodores, second rates by captains, third rates by commanders, and "fourth rates by lieutenant-commanders," although the law does not specify what vessels are to be regarded as "fourth rates." Some such general division of vessels into classes, with proper directory provisions as to the rank of their commanding officers, appears to be desirable, but it is obvious that the classification set forth in the section cited relates to vessels of a design now obsolete, and has reference to a period when the offensive strength of naval vessels depended upon the number rather than the caliber of guns carried.

Inasmuch as the great changes which have taken place in naval architecture in recent years render it impracticable to carry out these provisions of law respecting the classification of vessels, it is suggested that steps be taken to secure such a modification of the requirements of the law as will render it applicable to present conditions. Doubtless the classification of naval vessels upon the basis of displacement would prove satisfactory.

It may be proper to add in this connection, with reference to the provisions of section 1529 on the subject, to which allusion is made above, that the practice of assigning commodores to the command of vessels of the first rate has for some years past been discontinued.

EXPENSE OF TRIAL TRIPS.

The question of the payment of the expenses of trial trips of vessels built under contract, which has been a source of trouble and annoyance to the Department ever since the reconstruction of the Navy began, seems to be settled to the advantage of the Government, by stipulating that the contractors shall in all cases pay the expenses of trials before preliminary or conditional acceptance, instead of, as formerly was the custom, requiring them to pay the cost of unsuccessful trials only, the Department bearing the expenses of the successful trials upon which the vessels were accepted. The present method was tried, somewhat as an experiment, with some of the smaller vessels, and having been found to work satisfactorily, has been adopted in all cases. This vexatious matter has thus been disposed of without increasing to any appreciable extent the contract price of the vessels.

INSURANCE.

An interesting innovation in the manner of effecting insurance has been made in the case of battle ship No. 9, *Wisconsin*, now under construction by the Union Iron Works at San Francisco. The payments for vessels of this class are made in thirty installments as the work progresses, and heretofore it has been the uniform practice to require the contractors only to keep the vessels insured sufficiently to cover the amount of all payments made by the Government under the contract. By this method constant attention and much correspondence are necessary, as successive additions are made to the amount of insurance placed by the contractors. In the case of the *Wisconsin*, however, the contractors disposed of the whole matter at once by forwarding to the Department policies representing an insurance of £445,850, the sum of all the payments, twenty-seven, less 10 per cent, to be made on the vessel up to the time of her preliminary acceptance. While the total number of payments is thirty, it is not necessary that during construction of the vessel the last three be covered by insurance, inasmuch as such payments are not made until after her preliminary acceptance.

The policies taken out in this case cover the entire period during which the ship is to be under construction, extending to the date of her delivery to the naval authorities at Mare Island. It is stipulated that in case of accident at any time resulting in injury to the vessel, her value shall be determined by the amounts expended on the hull and machinery, as shown by the reports of the inspecting officers, each policy paying its proportionate share of the loss. The policies further cover all risks, whether of fire or other accident, including risks of trial trips as often as required. By this method of insurance, which was voluntarily adopted by the contractors, the renewal of policies from time to time during the continuance of the contract, the making of repeated additions as the work progresses to the amount of insurance placed, and also the supervision, and by no means inconsiderable correspondence incidental thereto, are avoided.

A further departure from previous practice made during the year has been the insertion in all contracts of a clause specially requiring that vessels under construction shall hereafter be insured against "breakage of ways, and risks of launching." While the Government has not heretofore been subjected to any loss upon this account, it was deemed desirable, after careful consideration of the subject, and in view of the possibility that an accident of this nature might occur at any time, to make provision for such a contingency.

BONDS.

Some important modifications of the Department's requirements as to the execution of bonds have been made during the year. With respect to bonds generally, it may be said that under present instructions it is requisite that a bond bear date even with or prior to that of the affidavits of sureties and the certificate of their sufficiency; that there be two or more witnesses to each signature; that seals of wafer or wax be attached where indicated in the form of bond, opposite the places for the signature of the principal and sureties; that erasures or alterations in any part of the bond be carefully avoided, and that the sufficiency of the sureties be certified by the judge or clerk of a United States court, or by a United States attorney.

Where individual sureties are offered it is required that bonds be signed by not less than two sureties, one of whom at least must qualify in a sum, over and above all exemptions, debts, and legal liabilities, not less than the full amount of the bond. If there are but two sureties the second must qualify in like amount; or, in lieu of a second surety for the full amount, two or more individuals will be accepted, provided the aggregate sum for which they qualify be not less than the full amount of the bond. Each surety must make affidavit, stating the value of his or her property, over and above all exemptions, debts, and liabilities. Where a woman appears as surety, it must be stated whether she is single, married, or a widow, and if married or a widow, whether she holds her property in her own right and is competent under the laws of the State in which she resides to bind herself as surety. The Department has, furthermore, recently decided that the wife of the principal named in a bond will not be accepted as surety thereon.

Since the act approved August 13, 1894, entitled "An act relative to recognizances, stipulations, bonds, and undertakings, and to allow certain corporations to be accepted as surety thereon," became a law, resort is frequently had to corporations as sureties. In such cases it is required that the company appearing as surety shall furnish a certificate by the Attorney-General that such company has complied with the requirements of the act and been authorized to do business thereunder. A corporate surety company is, furthermore, required to show that it has a duly appointed agent in the District of Columbia, and must file in the Navy Department a copy, duly authenticated by the seal of the Department of Justice, of the letter of the Attorney-General authorizing it to do business under the act cited; a copy, certified under the seal of the Supreme Court of the District of Columbia, of the company's appointment of an agent or attorney in said District, unless the letter of the Attorney-General shows that such agent has been duly appointed, and a certified copy of its charter or articles of incorporation, and of so much of the by-laws of the corporation as may be necessary to show what officer or officers are authorized to execute bonds or enter into other obligations in its behalf. Surety companies are, in addition, required to submit quarterly statements of their financial condition in the months of January, April, July, and October, such statements to be signed and sworn to by the president and secretary of each company; and whenever changes are made in their officers the Department is to be advised thereof.

Under these general instructions, a considerable number of bonds bearing the names of corporations as sureties have been approved during the past year, and the cases in which resort is had to corporations rather than to individuals as sureties are annually increasing in number. It is believed that this system, created by the act of August 13, 1894, presents many advantages over the system of individual suretyship formerly prevailing, and its general adoption will doubtless prove to be a matter of convenience to officers, contractors, and others of whom bonds are required, while at the same time offering to the Department a more stable and satisfactory form of security than is afforded by individual suretyship.

ACQUISITION OF PATENT RIGHTS.

In prior annual reports attention has been invited to the advisability of the enactment of legislation providing for the acquisition by the Government of certain rights in patents granted to its own officers. The question of the adjustment of the rights of officers of the Navy holding letters patent for the invention or discovery of new and valuable devices and improvements, the use of which is deemed advantageous to the public service, has been found to be a matter of difficulty. Wherever such inventions are the outcome of the assignment of the officers making them to the special duty of experimenting with a view to suggesting improvements upon existing methods, special facilities having been afforded them by the Department to that end, it has been held that the product of their experiments is the property of the United States. If, however, an invention is the result of the personal enterprise and effort of the officer making it, no expense being incurred or facilities furnished by the Government, the inventor is entitled to the fruits of his labor, and letters patent issued to him for such invention are his property and can not be acquired by the Government without his consent and the payment to him of such royalty as he may demand.

It is highly desirable to employ in the construction of modern vessels of war the best devices, not only in armament and machinery, but in lighting, ventilating, and the countless details of equipment and interior economy. Naturally, many patents covering such devices are held by employés of the Government, and particularly by officers of the Navy, who, from the nature of their employment, are not only interested in such matters, but often specially qualified to devise improved methods; and it is in accordance with sound policy to encourage the exercise of inventive abilities in all that contributes to the efficiency of our ships of war. It seems advisable, therefore, that some means be adopted by which the Government may acquire the use of patent rights of this character upon a just and equitable basis.

To accomplish this desirable end two measures, at least, have been introduced in Congress in recent years. The first of these, which was passed by the House of Representatives during the last Congress, provided, in effect, that the Secretary of the Navy might acquire the use of such devices, covered by letters patent issued to any officer of the Navy, as in his judgment would promote the public interests, the rate of compensation to be paid such officer to be determined by a board of not less than three naval officers, appointed by the Secretary, all facilities in originating the work and perfecting the invention which the inventor enjoyed by reason of his connection with the public service to be considered by said board, and the decision thereof to be subject to the approval of the Secretary of the Navy.

The second of the measures referred to (S. 1046, Fifty-fifth Congress, first session), introduced in the Senate March 22, 1897, by Senator Chandler, of New Hampshire, provides:

> That whenever, in the judgment of the Secretary of the Navy, the public interests require the use in the naval service of any invention or discovery covered by letters

patent issued to any officer of the Navy, whether retained in his ownership or assigned to others, said Secretary shall proceed to use said invention or discovery in the manner and to the extent required by such naval service, and such royalties and compensation as may be equitably due such officer, considering all the circumstances connected with the making of the invention or discovery, and especially all facilities in originating, working out, or perfecting the invention which the officer may have enjoyed by reason of his official position, may be recovered by suit brought by said officer in the Court of Claims. Said court shall make rules for the trial of such cases, conforming as far as may be with the rules established by the Supreme Court for the practice in courts of equity, and all cases shall be determined within one year from the filing of the petition therein unless, in the discretion of the court, upon sufficient cause shown, the time is extended. The Secretary of the Navy is hereby prohibited from making any contract or payment for the use of any patent taken out by any naval officer.

This measure seems to afford a reasonable and satisfactory solution of this question, and I respectfully recommend that Congress at its next session be urged to give it consideration.

INSTRUCTION IN MILITARY LAW.

While naval courts are tribunals of limited jurisdiction, it is doubtful whether the questions presented for their determination, within the sphere of their powers, are materially less intricate or difficult than those brought before civil courts dealing with like matters. Officers of the Navy sitting as members of courts-martial are charged with the duty of determining the facts which may be established by the evidence brought before them, and in so doing they perform the functions of a jury in civil proceedings. But the jury in a trial before a civil tribunal is guided by the enlightened counsel and instructions of a judge whose trained knowledge is invoked for the elucidation of every question of law raised in the course of the proceedings, and this important duty, the functions of the judge, members of courts-martial must also discharge.

Without entering into any discussion of their origin and history, it is sufficient to say that military and naval courts, as they now exist, are in the main guided by the same leading principles of justice and controlled by the same general rules of procedure and evidence as civil courts; and it seems highly desirable that this should be the case, since no better methods of determining the question of the guilt or innocence of persons charged with offenses are known than those which the experience of the civil courts during a long period of years has developed. The interests of the Government and those of accused persons are alike rendered safer by the adoption in military and naval procedure of those established rules which govern the ordinary criminal courts of the land, and the more closely those rules can be applied the more available the vast and valuable collection of precedents found in adjudicated cases will become. Appeals to such precedents will often save much time, avoid confusion and uncertainty, and promote harmony and uniformity in the rulings and decisions of courts-martial.

Assuming that the United States must develop and maintain a considerable navy, it is important in the present period of reorganization that such steps as may be practicable be taken to secure the establishment upon secure foundations of the system of jurisprudence by which that navy is to be governed, discipline maintained, and the efficient discharge of every duty by officers and men in all their relations within and without the service promptly enforced. The rulings and decisions of naval courts, when approved by the convening authority, form precedents. Officers of the Navy sitting as members of courts-martial thus become the framers of that system by which the laws and regulations governing the Navy are to be practically applied. An officer, or a body of officers, assigned to such a duty, but being wholly unprepared therefor, may, certainly in time of peace, and perhaps even in time of war, do the service as great an injury by an erroneous decision as would be caused by a mistake of judgment exhibited in the discharge of any other naval duty.

As the result of a careful scrutiny of the proceedings of naval courts-martial both general and summary, extending over a period of more than fifteen years, I am satisfied that such duty, usually unpleasant, arduous, and responsible, has, speaking generally, been well and faithfully performed; at the same time I am convinced that it is no more wise or just to ask officers to discharge a duty of this character without adequate preparation than it would be to place them in charge of construction, machinery, or in positions of command without preliminary training.

It is of importance to the Navy that its officers and men should entertain the most assured confidence that if at any time their interests are brought before naval courts they will there be dealt with, not in an uncertain or arbitrary manner, dependent upon the incidental constitution or temper of the court, but that they will receive wise and able consideration, and that the conclusions reached will be dictated by the impartial and unvarying principles of justice. Such confidence will go far to promote a manly and courageous performance of duty, affecting minor as well as important matters, and extending to all relations with which the discipline of the service has to deal.

Entertaining these views, I have deemed it my duty in previous annual reports to invite attention to the fact that the course of study prescribed at the Naval Academy, where officers who are to fill responsible positions in the Navy are so well trained in other essential matters, does not include instruction in military law, and I have ventured to recommend that a brief course in this branch of an officer's equipment for his profession be added to the curriculum of that institution. It is not intended by this recommendation to suggest that all officers of the Navy should be thoroughly trained in the intricacies of the law; but it is a fact that at any time after final graduation from the Academy an officer may be called upon to perform duty as a member or recorder of a summary court-martial, and that early in his career every officer is subject to service as a member or judge advocate of a general court. It is believed that a careful consideration of the subject will render clear the importance of such preliminary instruction in military law as will enable officers upon whom duty of this character is imposed to understand the rules of evidence, and to comprehend the general principles in accordance with which justice should be administered in naval courts.

Instruction in military law of the character herein recommended is given at the United States Military Academy, an institution which bears the same relation to the Army that the Naval Academy bears to the Navy, and no sufficient reason is known for the omission of such instruction from the course at the latter-named institution.

THE OFFICE FORCE.

In concluding the foregoing résumé of the work of the past year it may not be inappropriate to add that the increasing pressure of business hereinbefore commented upon has demanded for its prompt disposition the intelligent and unremitting attention of every officer and clerk on duty in the office. This demand has met with ready and zealous response.

Very respectfully,

SAM. C. LEMLY,
Judge-Advocate-General.

The SECRETARY OF THE NAVY.

Estimates of appropriations required for the service of the fiscal year ending June 30, 1899, by the Office of the Judge-Advocate-General, Navy Department.

Detailed objects of expenditure, and explanations.	Estimated amount which will be required for each detailed object of expenditure.	Total amount to be appropriated under each head of appropriation.	Amount appropriated for the current fiscal year ending June 30, 1898.
Salaries, Office of Judge-Advocate-General (R. S., p. 27, sec. 167):			
Chief clerk (act June 8, 1880, Stat. L. 21, p. 164, act Feb. 19, 1897, Stat. L. 29, p. 564)	$1,800.00		
One clerk of class 4 (same acts)	1,800.00		
One clerk of class 3 (same acts)	1,600.00		
One clerk of class 3 (submitted) [a]	1,600.00		
One clerk of class 2 (act Feb. 19, 1897, Stat. L. 29, p. 564)	1,400.00		
One clerk of class 1 (same act)	1,200.00		
One clerk (same act)	1,000.00		
One clerk (same act)	900.00		
One laborer (same act)	660.00		
		$11,960.00	$10,360.00

[a] In consequence of the large amount of work devolving upon the Office of the Judge-Advocate-General, not only upon contracts growing out of recent acts of Congress providing for the increase of the Navy, but in connection with the annually increasing legal work of the office generally, consequent upon the placing of modern ships in commission, the services of an additional law and contract clerk are, and for some time past have been, urgently needed. The work required being legal in its character, it is not believed that the services of a competent person can be secured for a compensation less than $1,600 per annum, and an estimate for an additional clerk of class 3 is accordingly submitted. The allowance of an additional clerk who may be placed in training for the higher grades of work in this office is a matter of great importance and can not be too strongly urged upon the ground of present demands, as well as in view of the possibility of changes, which may at any time occur, of such a nature as to deprive the office of the services of clerks who, by reason of many years of training and experience, have become competent.

REPORT

OF THE

SUPERINTENDENT OF NAVAL WAR RECORDS

TO THE

SECRETARY OF THE NAVY.

NAVY DEPARTMENT,
LIBRARY AND NAVAL WAR RECORDS,
Washington, August 10, 1897.

SIR: I have the honor to transmit herewith estimates for the Office of Naval War Records and for the Department library for the fiscal year 1898–99, marked, respectively, "A," "B," and "C."

Since the last annual report of my predecessor, the fourth and fifth volumes of the Official Records of the Union and Confederate Navies in the War of the Rebellion have been published and distributed by this office, and the sixth volume is now in the hands of the printer. The increase of 1,000 copies made by Congress has been distributed during the year to the active list of commissioned officers of the Navy and Marine Corps, the original number allowed by Congress for distribution, viz, 1,048, not having been sufficient to supply contributors, and all the officers of the service. The estimates, therefore, are made this year, as last, on the basis of the publication of 11,000 volumes. It is the purpose of the office to publish at least two volumes annually, which is all that the force of the office and the amount for publication allowed by Congress will permit.

I have the honor, however, to renew the recommendation of my predecessor with reference to a reorganization of the office, with a view to the speedy completion of the publication of the Naval War Records, which contemplated a board of publication, to be selected by the Secretary of the Navy, to consist of an officer of the Navy and two civilian experts, together with one expert indexer and one expert proof reader. This plan has already met with the approval of the Department, and has been agreed to by the Senate of the United States.

The following statement is quoted from the report of my predecessor, Lieut. Commander Richard Rush:

> An examination of the present plan of publication which has been adopted by the Department will show that the selection of original manuscript to be introduced into the records rests entirely in the hands of the superintendent. I am of the opinion, in the interest of the true historical value of the work, that this duty could be performed to better advantage by a board of publication, to be composed of one naval officer and two civilian expert members. There seem to be strong reasons in favor of this board, chief among which may be cited that such an organization would give a definite and settled policy to the management of the publication until its completion, which changes of the naval member would not affect. That such a

settled policy is vital to the success and speedy completion of the work, seems to be beyond question. Another reason in favor of such a board, if properly constituted, is that the question of the selection or rejection of original manuscript for introduction into the compilation could be more fairly decided upon to the impartial interest of each side of the conflict in the civil war, an important consideration to the historical value of the work. The plan of a board of publication has given satisfactory results in the War Department in the work of the Army War Records, a publication similar to our own.

In addition to these reasons, the saving in the total cost of the work would be considerable, such reorganization enabling the office to double the number of volumes published annually and to complete the work in about five years, thus saving in salaries, by careful computation, the sum of $22,000. This reorganization is therefore earnestly recommended.

The work of searching for and collecting material for the Naval War Records has been continued, valuable papers having been brought to light, without which the record of important operations would have been incomplete. A large number of Confederate records having been destroyed at the close of the war, especial attention has been paid to supplying this deficiency by obtaining private letter books and reports of officers, and by means of logs of vessels, so far as they can be obtained.

The library has only one clerk on its rolls, in this respect being at a disadvantage in comparison with all the other departmental libraries. The entire time of this clerk is occupied in the work pertaining to the reception and distribution of the books and periodicals. No provision is therefore made for the absolutely necessary work of selecting books for purchase, the keeping of accounts, the accession, shelf listing, cataloguing, and correspondence of the library. This position requires the services of a male clerk, preferably with some knowledge of library work, who should be both typewriter and stenographer, with some proficiency in at least one modern language. I would therefore recommend the addition of one clerk of class 2 to the library force.

The library contains a large and valuable collection of books, which have been chosen with care for a number of years. As it is a professional library, and every year expensive books of scientific and technical value are issued from the press, it is necessary that a sufficient appropriation should be made to obtain the most recent treatises on professional subjects and those periodicals which contain scientific data of value to naval officers. The appropriation for this fiscal year allowed by Congress is inadequate for the needs of the library. The Office of Naval Intelligence is mainly dependent upon the library for the technical and professional information used in its publications. I therefore recommend, for the suitable maintenance of the library, that this amount be restored to $1,000, the sum allowed by Congress previous to the fiscal year 1893–94.

All of which is respectfully submitted.

Very respectfully, E. K. RAWSON,
Superintendent Naval War Records.

The SECRETARY OF THE NAVY,
Navy Department.

OPERATIONS OF THE NAVAL MILITIA.

NAVY DEPARTMENT,
Washington, D. C., October 26, 1897.

SIR: I have the honor herewith to inclose Lieutenant Gibbons's report on the Naval Militia, with my approval. I also call your attention to the reports of the different boards, who have inspected the various divisions in their annual encampments. I was greatly pleased with the zeal and efficiency shown by the different organizations which I personally visited (Ohio, Michigan, Illinois, and New York), and no less with the showing made by most of the others, as set forth in the accompanying reports. There were, as you will see, two or three concerning which the reports were less favorable.

The different State organizations are continually asking for old vessels, and the Department has finally tried the experiment of sending the *Yantic* to the lakes for the use of the Michigan militia. The supply of these old wooden vessels has now become practically exhausted. The Department has tried the experiment of loaning monitors to the different organizations, but the results have not so far been satisfactory, as monitors are poor ships for cruising or for use as barracks.

This office has paid particular heed to the development of the Naval Militia. It must be remembered that the Naval Militia are in no sense proper substitutes for an efficient naval reserve, to consist of seafaring men under direct control of the national authorities. The Department believes that such a reserve should be constituted, but it would be expensive, and hitherto the expense has been the insuperable obstacle in securing action from Congress. In the absence of such reserve the Naval Militia offer the only means of procuring what is in any way a substitute for it; and, moreover, they have particular and very important functions which belong to them alone. The Department has but a very small sum to devote to their maintenance and care, and this sum becomes smaller for each division from year to year, inasmuch as the number of organizations is continually on the increase. The Department is therefore not able to drill and supervise these organizations as it would like to, and they must be left largely to their own good sense, energy, and initiative. In consequence there is a great variety in the condition of efficiency reached by the different organizations.

There are three or four of these organizations which, in the event of a sudden emergency, could be utilized at once for manning the smaller national cruisers; but this, of course, can not generally be the case with the majority of the organizations. They must be depended upon primarily as a second line of defense. There are two very important features which should be attended to by such a second line. One is the placing of mines; the other the establishment of signal stations for coast defense. The Department should, sir, request that there should be inserted in the provision for the maintenance of the Naval Militia the words "submarine-mining outfits," so as to allow of training them for this purpose. The Department has also been maturing plans for the signal stations for the coast defense, and a very slight expenditure of money, with the cooperation of the Treasury Department, will put this on a satisfactory basis. The organizations are continually requesting the detail of officers to instruct them, and they can best of all be instructed by actual service on regular war vessels, or under the supervision of naval officers, and in conjunction with the sailors.

At present it is a very serious drain upon the resources of the Navy to provide for the annual drills of the different organizations, especially as plans for joint encampments have hitherto invariably fallen through, owing to the inability of the States to act together. It is much to be wished that Congress will authorize, in the first place, the substitution for the old paddle-wheel steamer *Michigan* on the lakes of a small modern gunboat, perhaps on the *Petrel* type, to be devoted largely to cruising with the lake militia organizations, and to overseeing them; and, furthermore, to the building of one similar small cruiser on the Pacific, and two on the Atlantic, to be used for this same purpose. With these cruisers it would be possible to bring the Naval Militia organizations to a very high standard of efficiency, and the cruisers themselves, of course, would be available at any moment for any of the regular naval uses in an emergency.

There has been a steady increase in the efficiency, as well as in the number, of these Naval Militia organizations, both on the Atlantic and Pacific, on the Great Lakes, and even in the Mississippi Valley. The movement is one of promise. The reports by the different regular officers who have taken part in their encampments give good ground for belief in the usefulness of these organizations in time of war. The Department has earnestly endeavored to encourage this movement in every way; it would be well to commend the above propositions to the especial attention of Congress.

Very respectfully,
THEODORE ROOSEVELT,
Assistant Secretary.

The SECRETARY OF THE NAVY.

NAVY DEPARTMENT,
Washington, October 15, 1897.

SIR: I have the honor to submit the following report upon the Naval Militia of the several States for the current year:

The naval appropriation act approved June 10, 1896, contained the following provision:

> Arming and equipping Naval Militia: For arms, accouterments, signal outfits, boats and their equipments, the printing of the necessary books of instruction for the Naval Militia of the various States, under such regulations as the Secretary of the Navy may prescribe, fifty thousand dollars.

The following regulations for the allotment of this sum were prescribed by the Department in Naval Militia Circular No. 1, issued June 6, 1897:

> Two thousand dollars ($2,000) of the appropriation for Naval Militia will be reserved for the purpose of providing books of instruction for the Naval Militia, which books will be distributed among the various organizations in such manner as the Secretary of the Navy may from time to time direct.
>
> Returns will be made by the governor of each State having a naval militia to the Navy Department, certifying to the following:
>
> Number of commissioned officers ....
> Number of petty officers ....
> Number of enlisted men ....
> Location of the divisions ....

No person serving in any capacity in the land militia, or as a bandsman or servant in the Naval Militia, will be included in this return.

The governor will also certify that the above officers and men were regularly organized, mustered in, and serving in the Naval Militia of the State on the 1st day of January, 1897, and are provided with uniforms of a naval pattern.

Upon the receipt of these returns, the Secretary of the Navy will allot to each State a proportionate part of the sum of forty-eight thousand dollars ($48,000) according to the ratio that the number of properly uniformed petty officers and enlisted men in each State bears to the total number returned by all the States, and the sum thus allotted will be placed to the credit of the respective States on the books of the Navy Department.

The following table shows the allotment made to each State in conformity with the above regulations:

State.	Petty officers and enlisted men.	Allotment.	State.	Petty officers and enlisted men.	Allotment.
Massachusetts	434	$5,625.71	Georgia	188	$2,436.94
Rhode Island	158	2,048.07	Louisiana	209	2,709.16
Connecticut	135	1,749.93	California	355	4,601.67
New York	367	4,757.22	Illinois	448	5,807.18
New Jersey	337	4,368.35	Michigan	177	2,294.36
Pennsylvania	183	2,372.13	Ohio	174	2,255.47
Maryland	233	3,020.25			
North Carolina	140	1,814.75	Total	3,703	48,000.00
South Carolina	165	2,138.81			

The State of Ohio reported a Naval Militia organization mustered in, and was included for the first time in the annual allotment. The State of Florida has mustered in four divisions, and will share in the next allotment. Virginia has organized one division, but it has not yet been formally mustered in. This makes a total at the present time of 17 States having Naval Militia organizations. During the past summer the Naval Militia received instructions as follows:

Massachusetts.—The Massachusetts Naval Militia embarked on the U. S. S. *Minnesota* and were towed to Nantasket Roads. The U. S. S. *Massachusetts* and the torpedo boat *Ericsson* were in attendance from July 12 to July 16, and a series of drills was held on board these vessels. On July 16 very good target practice with the main and secondary batteries was had by the Naval Militia on board the *Massachusetts.* On the *Ericsson* daily instruction was given in firing auto-mobile torpedoes. Boat reconnoissances and the establishment of coast signal stations were successfully carried out by the militia.

Rhode Island.—Owing to the failure of the legislature of Rhode Island to make an appropriation that would enable the Naval Militia to undertake a joint encampment outside of the State, the six days encampment was held at the State camp ground. There was no regular officer of the Navy detailed as inspector during this tour.

Connecticut.—The Naval Militia of Connecticut were in camp at Fishers Island, New York, from July 19 until July 24. The U. S. S. *Maine* was in attendance, and the militia had four days drills on board. On the last day the *Maine* got under way and proceeded with the Naval Militia to a position off Montauk Point, with the intention of firing at a target with the *Maine's* battery, but foggy weather prevented this practice.

New York.—On Saturday, July 24, the First Battalion of the New York Naval Militia embarked on board of the U. S. S. *Massachusetts* and *Texas*, a part of the regular crew of these vessels having been transferred to the receiving ship *Vermont.* The ships put to sea and made a passage to Fisher's Island, the Naval Militia performing deck duties. At Fisher's

Island three days were given to drills and instruction, including service on the torpedo boat *Ericsson*. On the afternoon of July 28 the ships again put to sea, and on the morning of July 29 target practice was held off Sandy Hook Light-Ship. The battalion disembarked on July 30.

Although only mustered into service on the 14th of June, the Second Battalion, whose headquarters are at Brooklyn, made a cruise up Long Island Sound in cutters lent them by the Navy Department. The original plans of this battalion for reconnoissance work were interfered with by bad weather, but the battalion saw some very hard service, which has not lessened its zeal and enthusiasm.

The Second Separate Naval Division, of Rochester, N. Y., went into camp at Massena Point July 26, and made a boat reconnoissance of the St. Lawrence River and adjacent territory southward from the Canadian boundary in latitude 45 degrees. An officer from the Naval War College was detailed to accompany the command.

New Jersey.—The Battalion of the East embarked on board the sailing ship *Portsmouth* at Hoboken and proceeded to Fisher's Island, New York, where they were drilled on board of the U. S. S. *Maine* from July 26 to July 28. The third day was taken up with moving target practice at sea, the Naval Militia being stationed at the 6-inch guns and the secondary battery.

Pennsylvania.—Three divisions of the Pennsylvania Naval Militia embarked on board of two Philadelphia ice-steamers and arrived on July 5 at Newcastle, Del., where they were met by the U. S. S. *Maine*. On July 6 they were inspected by the adjutant-general of the State of Pennsylvania, the *Maine* taking no part. On July 7 they were drilled on board the *Maine*, which got under way at 1 p. m. and proceeded to an anchorage off Woodland Beach. Drills were continued during the forenoon of July 8 and July 9, the *Maine* having returned to Lewes on the afternoon of the 8th. At 4 p. m. on July 9 the Naval Militia left for a pleasure trip to Cape May, the commanding officer stating that the services of the *Maine* were no longer needed.

Maryland.—The Naval Militia of Maryland embarked on the *Dale* July 17 at Baltimore and were towed to Tolchester Beach, where they were met by the U. S. S. *Cincinnati*. Drills on board of the *Cincinnati* during the week ending July 24 included subcaliber practice and torpedo firing. In addition, target practice was had with 1-pounders from boats and the battalion was exercised at landing. On the 23d the drills included a night attack on the *Cincinnati* by the boats of the Naval Militia.

Georgia.—The Naval Militia of Georgia were in camp on St. Simon's Island from July 15 to July 21. The U. S. S. *Wilmington* was in attendance. The drills included target practice with the main and secondary batteries and firing from boats with 1-pounders. Two officers and 12 men from the Savannah divisions and a like number from the Brunswick divisions made valuable boat reconnoissances, the former of St. Simon's Island and the latter of Jekyl Island. On July 21, when camp was broken, the Savannah divisions were embarked on board the *Wilmington* and transported to Savannah.

Louisiana.—The Louisiana Naval Militia were in camp at Ship Island, Mississippi, from August 9 to August 14. The U. S. S. *Montgomery* was in attendance. The drills on board included subcaliber practice and target practice with main battery and 6-pounders.

Illinois.—The Illinois Naval Militia were in camp near the Lake Shore Railroad station, South Chicago, during the week beginning

August 9. The U. S. S. *Michigan* was in attendance. The drills included boats under oars and subcaliber practice. On August 13 sixty officers and petty officers fired two shots each from the *Michigan's* 1-pounder and 6-pounder R. F. G., the target being at an average distance of 1,500 yards, and the ship under way. The growth of the Naval Militia movement along the Great Lakes (the Illinois brigade contains over 600 officers and men) emphasizes the necessity of replacing the *Michigan* by a modern ship.

Michigan.—The first and second divisions of the Michigan Naval Militia embarked on board the U. S. S. *Michigan* at Detroit July 11. Through the courtesy of the War Department a part of the regular crew had been quartered at Fort Wayne, where they remained during the week. The *Michigan* proceeded to Mackinac Island, where the militia landed, July 12, and went into quarters at Fort Mackinac. The drills during the week included boat drill, subcaliber practice, target firing with 3-inch B. L. R., and moving target practice with the battery of the U. S. S. *Michigan*. The *Michigan* returned to Detroit with the militia on board July 18.

The Second Division of the Michigan Naval Militia left Saginaw August 21 and went into camp the same day at Fort Mackinac. The U. S. S. *Michigan* was in attendance, and five days were spent in drills on board that vessel. On August 25 this division had moving target practice with the battery of the U. S. S. *Michigan.*

Ohio.—The Ohio Naval Militia rendezvoused at Johnson's Island, near Sandusky, Ohio, from July 21 to July 26. Two divisions from Toledo encamped on the island, and two from Cleveland were quartered on board of their steamer, the *Andrew Johnson*. The U. S. S. *Michigan* was in attendance, and the Naval Militia were drilled on board. On July 28 the divisions exercised at target firing with the *Michigan's* battery.

California.—The First and Second Divisions of the California Naval Militia made a week's cruise on the U. S. S. *Camanche*, which has been lent to them by the Navy Department. An officer of the U. S. S. *Bennington* accompanied them during the tour of duty, which began July 3.

The Third Division of the California Naval Militia embarked at San Diego on board the U. S. S. *Bennington* August 4 and was transported to La Playa, where it went into camp. Five days were given to drills on board the *Bennington*.

The Fifth Division of the California Naval Militia, stationed at Eureka, went into camp at Somoa, a point conveniently near the anchorage of the U. S. S. *Monadnock*, which vessel was in attendance for the week beginning July 13. Six days were given to drills on board the *Monadnock.*

The North Carolina and South Carolina organizations did not have a tour of duty, largely due to lack of State support. The detailed report of these drills, made by a board of officers on the ships that took part therein or by officers that accompanied the organizations, is appended.

In arranging for the annual tours of duty of the Naval Militia, the usual difficulties were met with. It was originally intended to have joint encampments of the Naval Militia, three or four States forming a group, and encamping at some strategic point where vessels of the Navy could be in attendance. Owing to a lack of cooperation from the State authorities, this plan had to be abandoned; and as each State selected its own dates, the Department was put to great inconvenience in making satisfactory assignments of naval vessels. Vessels of the cruiser type and torpedo boats are best fitted for the instruction of the Naval Militia in the duties that they will probably perform in time of war, but as the cruisers are almost constantly employed on regular service, they are not available.

In view of the frequent impossibility of diverting vessels of the Home Squadron from their regular duties for the purpose of instructing small bodies of the Naval Militia, it is recommended that three light-draft gunboats, to be known as "Naval Militia Training Ships," be provided, two for the Atlantic seaboard and one for the Pacific. These vessels would be able to visit the various ports having Naval Militia organizations, and drills could be carried on for extended periods, thus overcoming the objection made in the reports of Boards, viz., that the time for drills, which rarely exceeds a week, is entirely too short. Not only would such vessels be of great service in drilling the Naval Militia, but they could also perform valuable reconnoissance work in carrying out the plans of the War College for a second line of naval defense. Their commanding officers could act as inspectors of this second line, and so systematize its factors that upon a sudden call for the expansion of our naval force the Naval Militia would have its duties clearly defined.

The Department is authorized by law to lend temporarily to any State, upon the written application of the governor thereof, any naval vessel that is not suitable for general service. Many old wooden vessels of the Navy have been lent to the States under this law, and the supply is now practically exhausted. The last vessel to be condemned, the *Yantic*, has been lent to the State of Michigan. Foreseeing this state of affairs, the experiment has been tried of lending old monitors to some of the States, but the result has not been satisfactory. An attempt to maintain these monitors in a condition for cruising instead of using them, as originally intended, for floating barracks, has resulted in some of the States requesting extensive and costly repairs upon these obsolete vessels. If more modern vessels, either in ordinary or in reserve, could be laid up at certain ports where there are Naval-Militia organizations, they would serve the purpose much better. Furthermore, if the several States would make as liberal appropriations for naval militia boathouses as they do for land militia armories, the Department would then be better able to cooperate with them in drills and instructions afloat.

The adoption by the regular Navy of the 6-mm. rifle has enabled the Department to begin supplying the Naval Militia with the Lee .45, the latter being issued as fast as they are turned in from cruising ships. After the 6-mm. rifle has been thoroughly tested in the service it will be issued to the naval militia. The new 3-inch field gun is also being issued.

The 30-foot navy cutter has been made the standard boat for the naval militia, and is now being furnished, fully equipped for distant service, at a moderate cost. Where new divisions are forming, old cutters and boat guns are lent to them, in order to encourage the movement, but as soon as these divisions share in the allotment of the national appropriation it is intended that requisitions for all supplies, in order to be approved, shall include only standard articles. The 1-pounder Hotchkiss R. F. G. will be furnished as a boat gun.

As the field of usefulness of the Naval Militia becomes more clearly defined, and as these organizations continue to grow in numbers and in public favor, their services will be valuable in assisting the general Government to perfect a scheme for the enrollment of a true naval reserve made up of the seafaring classes. As a preliminary step to this end the cooperation of the Naval Militia has been asked in establishing coast signal stations for naval defense. The life-saving stations, being under Government control, should be properly equipped as signal stations, and the men, with the consent of the Treasury Department, enrolled as a part of the national naval reserve.

During the past summer commissioned officers of the Naval Militia have been permitted to attend lectures at the War College, and also to take a course of instruction at the Torpedo Station, in the handling of auto-mobile torpedoes. As yet, there has been no opportunity for instructing the Naval Militia in submarine mining, a work that they would undoubtedly have to undertake in time of war, especially at certain advanced naval bases whose defense is not included at present in the general scheme of Army coast defense. The recommendation of last year is, therefore, renewed, viz, that the words "and submarine mining outfits" be added to the wording of the appropriation made by Congress.

Very respectfully,
J. H. GIBBONS,
Lieutenant, United States Navy.

The ASSISTANT SECRETARY OF THE NAVY.

MEMORANDUM FOR BOARDS APPOINTED TO REPORT UPON THE CONDITION AND EFFICIENCY FOR SERVICE OF THE NAVAL MILITIA.

From the views of the Naval War College, submitted to the Department April 13, 1897, and from the reports of boards of inspection during 1895-96, it is assumed that the probable field for the Naval Militia in time of war will be:

1. To man a flotilla of small vessels for the defense of interior waters.
2. To protect, by mines and improvised batteries, bases in their locality whose defense is not undertaken by the Army.
3. To maintain signal stations, a system of scouting, and in general the whole matter of obtaining and transmitting information of the enemy's fleet.

The Naval Militia must depend for its success, in time of peace, upon strong local and State support. The Navy Department strives, by issuing text-books to these organizations and by bringing them in contact with the regular service on board ships from time to time, to throw about them a naval atmosphere. They are not to be considered in any sense as a naval reserve capable of manning our seagoing fleet, although their cooperation would be very valuable in examining into the seafaring personnel of their respective districts, in keeping constantly informed as to this source of supply for the Navy, and in suggesting possibilities in the way of grouping and registering these men, which would make them available in case of sudden need. A true naval reserve would have to be established under national auspices alone. The dual character of the Naval Militia, owing, as it does, allegiance to the State maintaining it and to the General Government, must place a limitation on the expectations that the latter has concerning it.

In order to ascertain how far the various naval militia organizations have developed on the lines thus laid down, it is requested that the boards appointed to report upon the condition and efficiency for service of the Naval Militia will be governed, in a measure, by the foregoing conclusions.

In order to secure uniformity in reports the information will be grouped as follows:

(1) Official designation of State Naval Militia.

(2) Strength—(*a*) authorized; (*b*) organized; (*c*) per cent attending instruction on board.

(3) Number, organization, and stations of brigades, battalions, and divisions.

(4) How are officers appointed or selected? Number of ex-naval officers serving.

(5) State appropriations.

(6) Armament, character and condition of (to include articles coming under the cognizance of the Bureau of Ordnance, whether purchased or borrowed).

(7) Ammunition, character and amount of, on hand.

(8) Equipment, character and condition of (to include boats and signal outfits).

(9) Uniforms, character and condition of. Particular attention is to be paid to the uniforms of the petty officers and enlisted men, as they must be provided with uniforms of a naval pattern before the organization can share in the allotment of the national appropriation for "arming and equipping the Naval Militia."

(10) Camp equipage—(*a*) tents; (*b*) mess outfits.

(11) Property accountability. Are there any regulations in regard to? Are they strictly enforced?

(12) Subsistence—how furnished; how prepared.

(13) Character and scope of drills and instructions given—(*a*) on board ship; (*b*) on shore.

(14) Performance of duty, remarks on.

(15) Personnel—(*a*) class of men composing the organization; (*b*) professional knowledge; (*c*) number that have served in the Navy; (*d*) number belonging to the seafaring class.

(16) Discipline.

(17) Target practice.

(18) Charts; are officers familiar with? Has the organization performed boat reconnaissance work in local waters?

(19) Signalmen—organization, equipment, and efficiency.

(20) Automobile torpedoes; are any of the officers and men familiar with?

(21) Recommendations.

(22) Remarks.

NAVAL MILITIA OF MASSACHUSETTS.

U. S. S. MASSACHUSETTS, FIRST RATE,
Off Boston, Mass., July 16, 1897.

SIR: Referring to your order of date of the 7th of July, constituting us a board of officers to examine into and report on the condition of the naval-militia organization of the Commonwealth of Massachusetts, we have the honor to report that this service was performed in accordance with your instructions and with the detailed memorandum accompanying the same.

To preface the detailed report, the Board has prepared a statement of the periods and nature of the exercises.

The Naval Militia were quartered on board the U. S. S. *Minnesota*, which vessel was moored in Nantasket Roads, about 2 miles distant from the *Massachusetts*, in President Roads. The militia were transferred to and from the ship in their own tug and boats, and the exercises were conducted in order, as follows:

The period covering the exercises extended from Monday, the 12th of July, to Friday, the 16th, inclusive, in detail as follows:

Monday, July 12.—During the forenoon the officers of six out of the eight divisions comprising the naval brigade came on board and were instructed by the officers of this ship in the details of (1) the drill of the 13-inch B. L. R., the 8-inch B. L. R., the 6-inch B. L. R., and the 6-pounder D. S.; (2) the nomenclature and uses of the various parts of guns, mounts, and operating mechanisms, including ammunition supply, and (3) the methods of operating the turrets, and of all manipulation involved in the loading, training, and firing of the guns. During the afternoon five divisions of the Naval Militia, numbering about 200 men, came on board, and were stationed, instructed, and drilled by their own officers at the guns and at the ammunition supply, the ship's officers being present to render such advice and assistance as might be required.

Tuesday, July 13.—During the forenoon the drills and instructions were repeated, the militia being entirely under the orders of their own officers. The turrets were revolved, the guns trained, and primers fired.

Wednesday, July 14.—The weather being inclement, the militia drilled on board during the afternoon only, four divisions continuing the drills as on preceding day.

Thursday, July 15.—The militia held no drills on board, and the *Massachusetts* shifted berth outside of Boston Light preparatory to the target practice.

Friday, July 16.—At 9 a. m. the naval brigade of the Massachusetts Volunteer Militia came on board preparatory to target practice. The ship proceeded to the ground selected, about 6 miles ENE. of Boston Light-House. The target and observation boats were placed in position by the militia, the battery was manned, and observers stationed on board.

The firing began with 6-pounders, extending to the larger calibers, and continued till about 2.30 p. m., when, the target having been demolished by a shot from one of the 13-inch guns, the practice ceased. All hands then mustered on the quarter-deck, where a silver punch bowl was presented to the ship by the members of the Naval Militia, who then returned to the U. S. S. *Minnesota*.

Referring to the details called for by the memorandum, we have to state that the information was obtained by the members of the board from observations taken on board the *Minnesota*, from the commanding officer and others of the Naval Militia, from official records and reports on the militia, and from observance of the work performed by the men on board this ship during the entire practice. The results are grouped as follows:

The official designation of the entire State Militia is the "Massachusetts Volunteer Militia," and the particular organization devoted to the naval functions is designated as the "naval brigade." (See annual report of the adjutant-general of the Commonwealth of Massachusetts, 1896.)

Strength:

Authorized	530
Organized (enrolled)	488
Present on board *Minnesota*	423

Or about 87 per cent of enrollment.

In addition, on board the *Minnesota* during week of annual evolutions there were landsmen and mess attendants to the number of 69.

First Battalion (First, Second, Third and Fourth Divisions) stationed in Boston and vicinity, with headquarters on board the *Minnesota*. Second Battalion: Fifth Division stationed at Lynn; Sixth Division stationed at Fall River; Seventh Division stationed at New Bedford; Eighth Division stationed at Springfield. Four divisions equal one battalion; two battalions equal one brigade.

Line officers of grade of lieutenant, lieutenant (junior grade), and ensign are elected by vote of enlisted men in each division. The staff officers, of all grades, are appointed by the captain. The two battalion commanders are elected by the vote of commissioned officers of the whole brigade; these are of the grade of lieutenant commander. When afloat, the senior becomes the executive officer and the junior the navigator. The captain, or brigade commander, is chosen by vote of the commissioned officers of the entire brigade.

There are five ex-naval officers and one retired officer serving in this organization, with an average length of service of eight years.

The State makes special appropriations each year for repairs to ship, and for coal, gas, water, etc. For 1897 $4,200 was allowed for repairs, heat, light, etc.; $1,600 for two ship keepers, and $1,200 for wharf rent. The State also allows $2 per day for each enlisted man and the Army pay for officers during the six days of their annual drill. After paying for their own subsistence during this period, the balance is turned into the divisions as a fund to be drawn on for various purposes.

Ordnance purchased by State: One short Gatling, tube feed, boat and field mount, No. 451; 2 long 1-pounder Hotchkiss, Nos. 58 and 23, boat and field mounts; 1 short 1-pounder Hotchkiss, No. 40, Paris model boat and field mounts; 2 Driggs-Schroeder 1-pounder, mark II, Nos. 25 and 26; 426 Lee magazine rifles, caliber .45; 4 Colts .38 caliber revolvers. Other pistols, cutlasses, old Remington rifles, etc., out of date, as per record in office of Assistant Secretary of the Navy.

Ordnance loaned by Bureau of Ordnance: Two 60-pounder Parrott rifles; one 30-pounder Parrott rifle; seven 9-inch S. B. Marsilly carriages; one 6-inch B. L. R., wire wound (breech only), with carriage; three 3-inch B. L. R., with landing carriage; one Whitehead torpedo; one Howell torpedo (not received, but en route).

The condition of the above ordnance is good. Some of the above are of old pattern, and would be of little service in time of war.

Ammunition, as follows: Four thousand rifle cartridges, caliber .45; seventy-five 3-inch shrapnel; one hundred and twenty 1-pounder D. S. and H. common shell; nine 3-inch shell, and box of fuses for 3-inch shell.

The equipment furnished by the United States consists principally of chains, anchors, cordage, and furniture which were on board the *Minnesota* when she was turned over to the State of Massachusetts for the use of the Naval Militia; also a number of old boats which have been loaned from time to time. The cordage and boats are in very bad condition and will not prove of much service in the future. Many articles have been bought by money appropriated by the State and others by the fund annually given by the General Government. Five boats have just been ordered from G. Lawley Sons Corporation, to be paid for out of this year's fund. The signal outfit is good, and is of the same pattern as is provided for the naval brigades of the United States Navy.

Each enlisted man in the brigade is furnished with two white working suits, one blue mustering suit, one blue cap, one watch cap, one white hat, one blue sweater (jersey), one neckerchief, one knife lanyard, and one pair of leggings, all conforming to the regulation pattern of the United States Navy. The chief petty officers are uniformed similarly to corresponding grades in the Navy.

Each year the commanding officer makes requisition on the quartermaster-general of the State for such camp equipage as he may need for the parties to be sent on detached service. Both wall and shelter tents are furnished; the former for the officers and the latter for the enlisted men, each shelter tent accommodating five men. The regular army cooking outfit is used and one or more of the men detailed as cook during the encampment. Each man provides his own pot, pan, and spoon.

Each division commander is accountable for all property, for which he receipts by invoice. He receives annually from the State a certain sum for repairs to uniforms, and also $50 for himself for care of property. The regulations concerning property accountability are rigidly enforced.

The State pays the members of the brigade for the six days of their annual drill, and from this fund they subsist themselves. They hire a steward, cooks, and servants, who prepare the food which is bought by open purchase by the paymaster. Emergency rations for two days are always ready for the whole brigade.

The whole brigade is exercised at least once a week in some one of the following drills:

Artillery, afloat and ashore.
Seamanship, rigging loft.
Infantry, afloat and ashore.
Great guns, afloat.
Signals, afloat and ashore.
Boats.
Torpedoes.
Steam launches.
Single sticks, afloat.
Rifle practice, ashore.

During the practice week this year there were daily exercises on board the torpedo boat *Ericsson* in manœuvering the boat and firing and picking up torpedoes. In the matter of rifle practice the naval brigade has shown the highest grade of proficiency, the percentage of efficiency for the whole brigade being 99.38 per cent, which is the highest of all militia organizations in the United States.

The performance of duty by the naval brigade, as observed during the week, is excellent, considering the short periods of time for assembling the men and the fact that the requirements could not reach the rigid character that obtains on a well-drilled man-of-war. The intelligence, willingness, and interest evinced by officers and men is commendable and augurs well for the accomplishment of the ends. In time of war they would make a valuable adjunct to the Navy.

Personnel.—The men comprising the organization are men drawn principally from mercantile life, such as brokers, salesmen, clerks, and mechanics. The officers aim to secure as many skilled mechanics, electricians, engineers, and yachtsmen as possible. The professional knowledge of the majority is limited, but about 35 per cent have had considerable experience in and about local waters in tugs, yachts, boats, etc. A few are skilled in gunnery and seamanship, electricity, and many in signals. Few have served in the regular Navy. Few or none have cruised before the mast. The discipline, while not rigorous, is of such character that no punishments have been inflicted, and the men seem devoted to their duties.

Target practice with great guns is necessarily limited to the annual drill week on board a naval vessel. This year the practice on board the *Massachusetts* was very good, the conditions being fair. The practice was conducted as prescribed for the Navy, the ranges being from 1,100 to 1,700 yards. The number of shots fired were:

	Shots.
6-pounder, D. S	120
6-inch B. L. R	4
8-inch B. L. R	7
13-inch B. L. R	1

The element of time was not considered, and the men fired in rotation. The last shot was fired from the left 13-inch gun aft, by Lieut. George Selfridge, which destroyed the target and closed the practice. The scores were not obtainable.

Charts.—Many of the officers are familiar with charts. Fifteen officers of the brigade hold licenses of second-class pilots for Massachusetts waters. One officer holds license of first-class pilot, and it is claimed that others are equally competent, though lacking in the length of service required.

Boat reconnoissance is a feature of the drills. During drill week parties were sent daily, relieving in turn, to reconnoiter the coast and establish communication by signal and telegraph with Boston City. It is designed to extend this practice to include the whole seacoast of the State.

Signalmen.—The organization seems to be efficient. Each division has for this service two quartermasters. In addition, there is a signal corps in the brigade of eleven signalmen and one officer. They are furnished with the Navy signal kit.

Automobile torpedoes.—The organization is provided with one Whitehead torpedo. The ordnance officer is familiar with the practice. A corps of 11 men receive instructions on board the *Minnesota* and are awaiting a tube for practice. The practice on the *Ericsson* is already referred to.

Recommendations.—It is recommended (1) that a quarter bill of the ship on which the exercises are to take place be furnished to the commanding officer of the Naval

Militia some days prior to the annual drills, in order that the militia divisions may be assimilated and stationed before actually going on board; (2) that a list of drills and exercises of the militia, together with ammunition expended during the year, be furnished to the commanding officer of the naval vessel assigned by the commanding officer of the Naval Militia; this for the use of the board appointed to report upon the efficiency of the militia; (3) that a torpedo boat be stationed at Boston for cooperation and instruction during the entire year, or at seasons when exercise is practicable, and that during the week of exercises a fleet of torpedo boats be sent to the rendezvous for cooperation.

Remarks.—The cordage originally turned over with the ship by the Navy Department is practically worn out, and it is suggested that it be turned in for survey at the Boston Navy-Yard.

The memorandum for the board is appended to the first of the three copies of this report, together with original order.

Respectfully submitted:

JAMES C. CRESAP,
Lieutenant, U. S. N., Senior Member.
T. G. DEWEY,
Lieutenant, U. S. N.
J. L. STICHT,
Ensign, U. S. N.

COMMANDING OFFICER,
U. S. S. Massachusetts.

[Indorsement.]

U. S. S. MASSACHUSETTS,
Tompkinsville, Staten Island, N. Y., July 21, 1897.

Approved and forwarded. The drill of the Massachusetts Naval Brigade in connection with this vessel was extremely satisfactory. I should have desired a more extended period for observation and acquaintance with the brigade. I am of the opinion that four days is too limited a period for satisfactory drills, particularly in connection with a vessel which is entirely new to the Naval Militia. Moreover, in this instance, the exercises were interfered with by inclement weather. There is much valuable material in the personnel of the Massachusetts Naval Militia, and I am satisfied that it is deserving of all practicable encouragement for the development of its resources.

Very respectfully,

FRED. RODGERS,
Captain, U. S. N., Commanding.

The ASSISTANT SECRETARY OF THE NAVY.

NAVAL MILITIA OF CONNECTICUT.

U. S. S. MAINE, FIRST RATE,
New London, Conn., July 25, 1897.

SIR: In obedience to orders from the commanding officer of the battleship *Maine*, constituting us a board to inspect the condition and efficiency for the service of the Naval Militia of the State of Connecticut, and to make the report according to the requirements of a memorandum, a copy of which is herewith inclosed, we have to report as follows:

Official designation of State Naval Militia.—Naval Battalion, Connecticut National Guard.

Strength.—Authorized: One commander, two line divisions, each composed of 4 officers and 81 petty officers and men; one engineer's division, consisting of 2 officers and 18 petty officers and men; in the battalion staff there are 2 line officers, 5 staff officers, 5 petty officers, and 4 men; total, 207.

Organized (commander and staff): One line division, 4 officers, 65 petty officers and men; one line division, 4 officers, 60 petty officers and men; one engineer's division, 2 officers, 13 petty officers and men. The rates of the enlisted men of the Naval Militia below that of petty officers are seamen, first, second, and third classes.

Per cent attending instructions on board the *Maine*, 84.05.

Stations.—The battalion headquarters are at New Haven, one line division at New Haven, one line division at Hartford, one engineer's division at New Haven.

Appointment and selection of officers—Number of ex-naval officers serving.—The division officers are nominated by the division and appointed and commissioned by the commander in chief (the governor). Battalion officers are nominated by the division officers and also appointed and commissioned by the commander in chief. The staff officers are nominated by the commander and also appointed and commissioned by the commander in chief. There are two ex-naval officers, graduates from the Naval Academy, one line and one engineer's course, serving in the battalion.

State appropriations.—The State appropriation for the militia, land and naval force, is $145,000 per year, the whole strength of the State forces being 3,215. Of this the Naval Militia receives its share. We are informed by the commander of this Naval Militia organization that the funds appropriated to them by Congress are available only for articles of equipment, nearly all of which they have according to the specified allowance, and that therefore the money is of no use and accumulating, and he thinks it would be of great value to the organization if the men were allowed to draw navy uniforms and have it charged against this fund.

Character and condition of armament.—One 4-pounder B. L. howitzer, condition good; two 1-pounder R. F. Hotchkiss, caliber .45, condition excellent; 80 Lee magazine rifles, caliber .45, condition excellent; 68 Springfield rifles, caliber .45, condition fair; 75 Colt's navy revolvers, caliber .38, condition excellent; 29 cutlasses, condition good. The 4-pounder B. L. howitzer was purchased from the Bureau of Ordnance.

Character and amount of ammunition on hand.—There is a very limited amount of ammunition on hand, and is fitted for the armament mentioned in the previous answer. A large supply could be obtained immediately upon requisition from the armories.

Character and condition of equipment (boat and signal outfit).—The Naval Militia has for its use the U. S. S. *Wyandotte*, one 30-foot cutter, one 33-foot whaleboat, one 28-foot whaleboat, one dinghy. All these boats are complete with sails, spars, tackle, furniture, and rigging. Also, 1 steam cutter; 3 signal kits, with 4 flags each.

Uniforms.—The fatigue uniform of the officers is similar to that of naval officers, except that they do not wear the gold lace on sleeves, but do wear black braid on the trousers. The frock coats of the officers have a standing collar, trimmed with gold braid. The uniforms of the petty officers and men are practically of the naval pattern. There is no prescribed uniform for underwear, nor for shoes. The pea-jackets are trimmed with black braid on the pockets.

Camp equipage.—Complete camp equipments: sixteen wall tents and flags, 55 improvised common tents, 5 A tents, 76 wood pieces, 76 wood basins, 20 lanterns, shovels, 100 cakes soap, 1 hand litter, 165 gray blankets, 18 cot beds, 90 candlesticks, 480 candles, 18 mattresses (U. S.), 81 mattresses (C. N. G.), mallets, spades, baskets, racks, 1 storm flag, 1 hospital flag. Four mess outfits: 76 cups of the navy enamel pattern, 10 dippers, 4 Suzzacott ovens.

Property accountability.—All property is regularly inspected by the quartermaster-general, and officers in charge of same are held to a strict accountability on their respective bonds.

Subsistence.—Forty cents a day is allowed to officers and men for subsistence while on the yearly six days' drill. The force buys its own provisions and hires cooks and mess men.

Character and scope of drills.—A six days' tour of duty is allowed between July 10 and October 20. Between November 1 and June 21 there are weekly drills on shore of one and one-quarter hours' duration.

DRILL ON BOARD THE MAINE.

These drills were according to the following routine, which was strictly carried out, except target practice, which could not be had on account of fog. The militia were exercised in the use of the hand lead, deep-sea lead, Thomson's sounding machine, and log line instead.

Drill routine, for line divisions.

Forenoon.—First period, from 9 to 10.15 a. m.; second period, from 10.30 to 11.45 a. m.

Afternoon.—First period, from 1.30 to 2.45 p. m.; second period, from 3 to 4.15 p. m.

First day.—Forenoon: First period, first division shown around the ship; second division, boats. Second period, second division shown around the ship; first division, boats.

Afternoon: First period, first division, 6-inch guns; second division, 6-pounders and 1-pounders. Second period, first division, lecture on torpedoes; second division, lecture on compass and new rifle.

During both periods of forenoon officers will be taught 10-inch, 6-inch, 6-pounders and 1-pounders.

Second day.—Forenoon: First period, first division, boats; second division, lecture on ammunition, etc. Second period, second division, boats; first division, lecture on ammunition, etc.

Afternoon: First period, second division, 6-inch guns; first division, 6-pounders and 1-pounders. Second period, second division, lecture on torpedoes; first division, lecture on compass and new rifle.

Third day.—Forenoon: First period, second division, boats; first division, care of clothing, lead and log line. Second period, first division, boats; second division, care of clothing, lead and log line.

Afternoon: First period, first division, 6-inch guns; second division, 6-pounders and 1-pounders. Second period, second division, 6-inch guns; first division, 6-pounders and 1-pounders.

Fourth day.—Forenoon: Both periods, both divisions, getting under way, heaving lead, and ship routine at sea.

Afternoon: Both periods, both divisions, target practice, with main and secondary battery.

Every night.—Signal drill.

During the day.—Signal instruction for those men not otherwise employed.

Drill routine, for engineer's division.

First day.—Instruct officers. Stationing men in engine rooms and fire rooms. The method of making station bills, cleaning bills, water-tight door drill, general and fire-quarter drill, and cleaning bilges, etc.

Second day.—The general run of piping and the method of operating all auxiliary machinery, etc. The storing of spare machinery, oil, and coal, and the precautions to be taken.

Third day.—Explain workshop tools, and the work that can be done on board ship. The method of making adjustments of machinery, packing of valves, etc.

Fourth day.—Practical experience when under way, etc.

It was the intention to have on the third day 1-pounder drill in boats, but it rained too hard for this exercise. Those crews that did not pull well were nevertheless exercised in boats.

Performance of duty.—The men are willing. Their performance of duty is naturally limited on account of want of experience.

Personnel.—(*a*) Professional and business men, Yale University students, instructors, and professors. (*b*) Some of the militiamen have derived some knowledge from yachting, and in case of the engineer's division their knowledge is entirely from university instruction in mechanical engineering. (*c*) Two officers and one petty officer. (*d*) None.

Discipline.—We learn from the officers that the discipline in the camp is excellent. During the six days in camp there has been no case of trouble of any kind, and no liquor of any kind has been allowed or introduced as far as the officers know. The discipline of the militiamen on board ship was as good as could be expected under the circumstances.

Target practice.—The State allows each officer and man of the battalion 50 rounds of ammunition each year for rifle practice, and each officer in battalion and each man in engineer's division 50 rounds for revolver practice. Target practice could not be had on board this ship. (See paragraph 13.)

Charts.—Lieutenants Goodrich and Parker, in command of the two divisions, have a good knowledge of charts, and Lieutenant Parker would be able to use charts for the purpose of navigating a ship under all circumstances. The knowledge of the other officers in regard to charts, although they have apparently studied them, is limited. Commander Buckland and Lieutenant-Commander Day are well posted on local waters, and the other officers of the New Haven division have a fair knowledge of these waters. The New Haven division has done some reconnoissance work in boats.

Signalmen.—The navigator is chief signal officer. There is no separate signal division, but the quartermasters are required to perfect themselves in signaling and to teach the other men. No man is promoted in his rating unless he can pass an examination in signaling; in that way their system is somewhat similar to that practiced in the Navy. It is also claimed by Commander Buckland that he has more men well up in signaling than he would have if he had a special signal corps.

Auto-mobile torpedoes.—One of the officers in the Naval Militia is engaged in the manufacture of the Howell torpedo (Paymaster Bishop). The remainder of the battalion have a limited knowledge from previous instructions in annual tours of duty and study.

Recommendations and remarks.—It is the opinion of the board that the drills of the Naval Militia on shore are well utilized, in so much that a great deal of time is devoted to drills at rapid-fire guns, at which drills they are quite proficient. The Hartford Division know almost nothing about boats, and it is very desirable that they should have boats for practice. We think that in addition to the drills on shore, as now carried out, there should be frequent drills at "arm and equip boats," boat guns, and, if possible, with torpedo boats, all of which seem to form an important factor in the use of the Naval Militia, as laid down by the Navy Department.

The four days' tour on board the *Maine* was well utilized, and undoubtedly very beneficial, considering the limited number of days. Nevertheless, the time allowed for this tour of duty is not sufficient to give the men desirable amount of experience, and we respectfully refer to our suggestion on this subject in our report on the Pennsylvania Naval Militia.

In conclusion, the board begs to call attention to the fact that in case of the Connecticut militia, and most probably in case of every other militia, the naval forces seem to be considered as secondary to the land forces. The adjutant-general of the State, although properly belonging to the land forces, has almost entire control of the Naval Militia. An army officer is detailed by the War Department on the governor's staff, and it is he who inspects the Naval Militia. The Naval Militia of Connecticut have been directed to use the Army tactics for infantry drill. The drill periods on shore, which are regulated so as to be best adaptable for the land forces, are made to apply to the naval forces, although it it impossible for them to have their most important drills during the winter months.

We think that if the naval forces of the militia were given the same status as the land forces it would make them a better and much more efficient organization.

Very respectfully,

A. MARIX, *Lieutenant-Commander, U. S. N.*
C. W. JUNGEN, *Lieutenant, U. S. N.*
F. W. JENKINS, *Lieutenant, U. S. N.*

The SECRETARY OF THE NAVY.

NAVAL MILITIA OF NEW YORK.

U. S. S. MASSACHUSETTS,
Tompkinsville, N. Y., July 31, 1897.

SIR: We have the honor to transmit herewith a report upon the condition and efficiency of the First Battalion Naval Militia organization of New York.

Part 1 of this report, pertaining to organization, armament, equipment, etc., of this organization, has been furnished the Board by Commander W. B. Duncan, jr., commanding First Battalion.

PART I.

Official designation of State naval militia.—Naval Militia, New York; First Naval Battalion, New York.

Strength.—Authorized, 363 officers and men; organized, 325 officers and men, at the last report of the First Battalion; on board the *Massachusetts* and *Texas*, 227 officers and men. Percentage of attendance is 70, but is small for the reason that the commanding officer was notified that there was no room for more men on the ships. The Brooklyn battalion has just been organized, and 4 officers and 30 men have gone to it to help organize and fill the petty officers' places.

Number and stations of battalions.—First Naval Battalion, U. S. S. *New Hampshire*, foot East Twenty-eighth street, New York; 325 officers and men.

Second Naval Battalion, Brooklyn, N. Y., mustered into State service June 27, 1897, about 200 officers and men.

Second Separate Naval Division, Rochester, N. Y., 85 officers and men.

Naval Militia of the State commanded by a captain.

Organization of battalions: Commander, lieutenant-commander and executive officer, lieutenant and navigator.

Four divisions consisting of 1 lieutenant, 1 lieutenant (junior grade), 2 ensigns, and 81 men.

Staff: Lieutenant and signal officer, surgeon, paymaster, assistant surgeon, assistant paymaster, lieutenant and engineer officer.

Chief petty officers: Master at arms, chief boatswain's mate, chief gunner's mate, chief quartermaster, chief machinist, 4 signalmen, 4 machinists.

Appointment and selection of officers—Number of ex-naval officers serving.—Divisional commissioned officers elected by the seamen of their respective divisions. Commander, lieutenant commander, and lieutenant to act as navigator elected by the board of officers of the battalion. Staff officers appointed by the commanding officer of the battalion. There are four ex-naval officers serving with the first battalion.

State appropriations.—Eight dollars per man per annum; extra allowance for headquarters expenses; uniforms supplied to each man; pay and rations when ordered out by the State; ships considered as an armory, and taken care of by the county, which includes repairs and crew of 8 men and ship supplies.

Armament, character and condition of.—Two hundred and forty-three Lee magazine rifles, United States Navy pattern, 45.70 caliber, complete; web belts, knapsacks, haversacks, and canteens for full strength; 1 long Hotchkiss 1-pounder, complete, with field carriage and limber; 1 Driggs-Shroder long 1-pounder, complete; 2 short 1-pounder Hotchkiss boat guns; two 3-inch B. L. R. howitzers; two 12-pounder smooth-bore howitzers, all complete; 1 Whitehead torpedo; sixty-five .38 caliber Colt navy revolvers.

Ammunition, character and amount of, on hand.—Twelve thousand rounds 45–70 Lee ammunition; 2,500 rounds .38-caliber Colt's ammunition; 250 rounds 1-pounder ammunition.

Equipment, character and condition of.—Four 30-foot cutters, built by State; six 28 and 30 foot cutters borrowed from the Navy in 1891; 1 whaleboat; 1 steam launch; all boats have complete outfit—sails, oars, boat boxes, compasses, and everything necessary for distant service. The signal gear on board the U. S. S. *New Hampshire* is as follows: Twenty-five wigwag flags; 4 navy (wigwag) kits, complete; 1 full set navy numeral code, large size; 1 full set navy numeral code, boat size; 1 full set international code; 16 distinguishing pennants; 2 Ardois sets (makeshift); 1 small search light; 3 Very pistols and complete outfit; 2 portable (wigwag) lanterns; 16 Graham Meyer torches; 2 reels (3 miles) wire (metallic circuit); 2 field-telephone outfits; 2 field-telegraph outfits; 2 heliographs; 2 telescopes; 2 telescope tripods; 2 flash lanterns; 5 binoculars; 4 prismatic compasses; 4 pocket compasses; 4 Locke hand levels; 2 odometers; 4 predometers; 1 sextant. The organization has prepared boat reconnoissance work in local waters, and is now engaged in the same work; the officers are all familiar with the charts.

Uniforms.—Uniforms for enlisted men furnished by the State, and consist of the following articles, viz: Blue trousers, pea-coat, blue shirt, blue dress jacket, white sweater, leggings, blue cap, knife and lanyard, watch cap, neckerchief, two white working suits, and one white cap.

Camp equipage, tents, and mess outfit.—Full camp equipage, tents, and mess outfits for full strength of command.

Property accountability.—A strict account is required by the State for all State and Government property; semiannual returns made by commanding officer, who is personally responsible and can not be released except by board of survey.

Subsistence.—Subsistence provided by the State when ordered out. Entire charge taken by pay department of the battalion.

Drills and exercises.—Infantry and artillery, boats, torpedoes, seamanship, ship routine, signals, and great guns.

Personnel.—(*a*) Clerks and professional men; (*b*) slight; only what has been acquired since enlistment, except that a large proportion are familiar with small boat work on the waters adjacent to New York; (*c*) none; (*d*) probably 10 have served in merchant service.

Signalmen.—The battalion has for signal work 1 signal officer, 1 chief quartermaster, and 5 chief petty officers designated as signalmen of the first class; 6 expert signalmen, 22 qualified signalmen, and 17 fair signalmen who have not as yet qualified. Signalmen are detailed from the division for instruction and returned to their crews when qualified. Instruction is progressive in character. Examination for qualification includes ability to read 50 mixed characters in three minutes with flag (no errors allowed); ability to read yard-arm signals and Ardois with rapidity; familiarity with Very codes and international code; ability to read heliograph and flash lantern, whistle and bell, and to make heliograph alignments. Expert signalmen are required to go into telegraphy, telephony, and elementary navigation.

Automobile torpedoes.—Two officers have taken the course at torpedo station. One Whitehead torpedo, without any gear or tools, has been loaned to them, and has just arrived on board the *New Hampshire.*

PART II.

On Saturday, July 24, 10 officers and 123 men were embarked on board the *Massachusetts*, 80 members of her crew and 25 marines having been transferred to the *Vermont* to make room for the Naval Militia. The Naval Militia were at once assigned to divisions and messes, and their hammocks stowed. The ship proceeded immediately to sea, and the work of the militia commenced. During the passage of the ship to Fisher's Island Sound the militia performed all the deck duties of the regular crew, and the officers were put on watch, seniors on the deck and juniors as junior officers of the watch, both standing with the regular officers. The ship arrived in Fisher's Island Sound on Sunday morning, and a regular system of drills and exercises commenced, but was materially interfered with by bad weather.

Monday and Tuesday, and Wednesday forenoon were given up to great guns, torpedo instruction, boats, and subcaliber practice, the drill periods lasting from 9.30 to 10.30, 10.45 to 11.30 a. m., and 2 to 4 p. m. During the day and evening the signal corps was constantly exercised transmitting messages to and receiving them from the *Texas*. The men kept the anchor watch at night. The ship went to sea on Wednesday afternoon, and stood south to within 5 miles of Sandy Hook light-ship, and on Thursday forenoon had target practice with the 6-inch battery and the 6-pounders, The ship anchored in Gravesend Bay Thursday afternoon. Friday afternoon was given up to a review of the naval brigade on shore by Assistant Secretary Roosevelt; the battalion disembarked on Saturday about 10 a. m. During the whole week that this battalion has been on board, the men have performed their duties with intelligence, zeal, and with creditable spirit. They seem to be of good physique, and no sickness of any kind occurred.

The uniform very closely conforms to the navy pattern; a white sweater, however, being worn under the blue shirt. When clean this produces a natty appearance, but being conspicuous materially detracts from the appearance of the men when soiled. It is not adapted to use on board ship. The uniform of the petty officers is nearly the same as the naval uniform, the rating badges and also corps badges being different. In the handling of boats under oars and sails the men did remarkably well and showed good training. The subcaliber practice was fair considering the number of new men in the batallion and the limited amount of practice they had.

The signal corps of this battalion deserves especial commendation. They sent and received messages with rapidity and precision, and are familiar in a high degree with all methods of signaling. The signal officer, Lieutenant Anderson, is an expert and an enthusiast, and has reached a remarkably high degree of proficiency in the training of his corps, which should be a credit to any vessel in commission. The target practice could only be estimated with the eye, as no shots were recorded or plotted. The smoke interfered in a measure with good practice. Taking all things into consideration the practice was fair, some shots being remarkably good and some going very wild. The officers of the battalion are well posted professionally, and would soon become familiar with the routine of a war vessel and able to carry it out. The men, notwithstanding the sphere from which they were enlisted and their limited opportunities for adapting themselves to ship life, its duties and routine, would be of great value to the Navy in time of war, but are better adapted for service in harbor-defense vessels than for the active life on board a seagoing vessel.

Recommendations.—The organization of this battalion of New York militia being that of a ship's company, its efficiency and progress in training would be greatly advanced if it were possible to allow them the use of a vessel of the cruiser type for their summer drills, when the whole battalion could be embarked together.

If such a cruiser be available, only a small part of the regular crew should be kept on board, and the militamen required to perform all duties outside of the engine room.

The officers of the battalion should be assigned to regular watches, and required to manage the ship and carry out the routine so far as safety and reasonable care of Government property will allow.

The regular officers of the watch should only take charge in emergency, and should act as advisers and instructors. Under the present system the officers of the militia are too much afraid of giving trouble or interfering with the routine or upsetting some custom to make the watch duty of any great value. They should be furnished with the routine and made to carry it out, even if mistakes are made. Such a cruise, if even for a week, would be of far greater value to them from a professional standpoint than double the time spent under present conditions.

Battle ships, with their heavy guns and hydraulic and other mounts which require experts, even in the regular service, are not adapted to the use of the militia. They have too little berthing space, and require the battalions and divisions of the militia to be split up and separated from their own officers, as was the case in this cruise of the *Massachusetts*.

Both the officers and the men of this battalion of New York militia, as well as those of the Massachusetts militia, still speak of the great benefit derived from a week spent on board the *San Francisco*.

Such a cruiser is ordinarily adapted for the purpose of instruction. The Naval Militia should have more torpedo work if possible. If the Department could allow them the use of one of the torpedo boats for a day at a time, at intervals, it would be of great benefit to them.

Very respectfully,

T. M. POTTS, *Lieutenant, U. S. N.*
T. G. DEWEY, *Lieutenant, U. S. N.*
J. L. STICHT, *Ensign, U. S. N.*

NAVAL WAR COLLEGE,
U. S. Naval Station, Newport, R. I., August 7, 1897.

SIR: I respectfully submit the following report of the annual encampment of the Second Separate Naval Division of New York:

Having been detailed to accompany the command, I joined it at Rochester, N. Y., on July 23. The division was ordered to assemble at its armory at Charlotte at 4 p. m. of Saturday, the 24th. It there embarked in a small steamer, and started at 8 p. m. for Massena Point. A dinghy was hoisted in on deck, and two cutters were taken in tow, all regular man-of-war boats. Rough weather was experienced on Lake Ontario, but the boats in tow made good weather of it, and Ogdensburg was reached about noon of the 25th. It was then ascertained that the steamer could not run the Long Sault Rapids, and, as the canals were not open on Sunday, a delay was made at Ogdensburg until 4 a. m. of the 26th, when the steamer got under way, and, passing through the Cornwall Canal, reached the camping ground at Massena Point about 11 a. m. Camp gear and stores were at once landed and the remainder of the day spent in pitching camp.

The special object of the encampment was the reconnoisance of the St. Lawrence River and adjacent territory southward from the Canadian boundary in latitude 45°. On account of the distance from Rochester and of the importance of the work, it was thought desirable to devote all possible time to the main object, instead of carrying on the regular camp routine of drills. The command took no arms except those necessary for guard duty.

The work of reconnoissance was carried on by three parties, and included the Grass and Raquette rivers, the main and side channels of the St. Lawrence for nearly 20 miles, and the country between the St. Lawrence and Grass rivers. Observations were made of the strength and direction of currents and location of eddies, and valuable experience was acquired in the management of boats in swift and variable currents. Attention was paid to landing places and other features entering into the strategic consideration of the district, and in order to increase the local knowledge of the command. The work of the boats' crews was so arranged that each of them covered as much as possible of the whole district. The dinghy was transported 9 miles overland and returned by the river, running the Little Sault Rapids to demonstrate the practicability of doing so with man-of-war boats.

The division had 3 officers and 51 men in camp and 2 officers and 9 men absent. The discipline was good and the behavior of the men excellent. All work was cheerfully performed and valuable experience obtained. The allotted time of one week for the encampment admitted of only four days' actual work in camp. Much better results could be obtained if a full week could be passed in camp, with an extra allowance of time necessary for the transportation of the command.

There is perhaps no one organization of the Naval Militia having so large a field of usefulness open for it in the line of reconnoissance of territory, acquirement of local knowledge, and of existing and possible naval resources as the Second Separate Naval Division. The absence of any other division on the western frontier of New York practically extends their territory from the Niagara River to the St. Regis, including the whole shore of Lake Ontario and all American territory bordering on the St. Lawrence. I endeavored to impress the importance of this feature on both officers and men, and found them very appreciative of the situation. Much can be done in acquiring knowledge of reconnoissance work by short trips into the country from Rochester, and leisure time spent in this way would greatly increase the usefulness of the command in its annual summer work. In view of the importance of work of this character, I recommend that a plane table be obtained and some of the men trained to its use.

None of the officers or men of the command have had any naval experience. A large proportion, however, have been at some time connected with yacht clubs and have attained considerable efficiency in handling small boats. During the last year an armory or boathouse has been built by the State at Charlotte, at the mouth of the Genesee River, which is well equipped and easy of access. This armory provides for the accommodation of all the boats and furnishes room for slinging hammocks, so that many of the command sleep there during the summer, practicing with boats in morning or evening. The time allotted—one evening a week—is of course too short to perfect the boats' crews in rowing. The efficiency of the command is greatly promoted by the location and conveniences of this armory, which tempt the men to the water in their leisure hours.

The uniforms of the division are well made and in good condition. The Government property loaned to the command is well cared for and in condition for immediate use.

It would probably be easy to obtain a commanding site on a bluff overlooking Lake Ontario, near the present armory, on which to mount a gun on a naval carriage and familiarize the men with heavy-gun practice. A 20-pounder or 30-pounder Parrott B. L. R. would secure instruction and enable target practice to be carried on advantageously over the lake, thus establishing what might prove a valuable school of artillery practice. The location of the armory on the water front also offers great facilities for work with boat artillery, and the possibility of the usefulness of the command as marine artillery is so great as to suggest the advisability of special attention being paid to that branch of drill.

Very respectfully,

J. B. MURDOCK, *Lieutenant, U. S. Navy.*

The ASSISTANT SECRETARY OF THE NAVY,
Navy Department, Washington, D. C.

U. S. S. TEXAS, FIRST RATE,
Navy-Yard, New York, August 7, 1897.

SIR: The board appointed by you to report upon the condition and efficiency for service of the detachment of Naval Militia recently ordered on board of this ship respectfully submit the following report:

Character and scope of drills and instruction.—The officers and men had the same duties to perform, at sea and in port, as were required of the officers and men of the same grades belonging to the regular ship's company; officers had watch and division duty; men had watch duty, wheel, lookouts, signal watch, boat duty, messenger watch, orderly duty, and assisted in cleaning ship. The detachment was drilled and instructed at the main and secondary batteries and at target practice with the same, in boats under oars and sail, and in small arms and signals, and instruction was given on the Whitehead torpedo, including practice with the same and disassembling. Small details were instructed on board the *Ericsson;* no instruction on shore.

Manner of performing duties.—The officers and men performed all their duties with intelligence, zeal, and alacrity, showing great willingness to learn, and commendable knowledge for men of so little experience.

Personnel—Class of men composing organization.—This battalion is composed of manufacturers, professional men, and clerks. Their professional (naval) knowledge is slight—only what has been acquired since enlistment; a large proportion, however, are familiar with small boat work on the waters adjacent to New York. None have served in the Navy. About ten have served in the merchant marine.

Discipline.—The discipline of the organization was excellent.

Target practice.—Target practice was had with the 6-inch B. L. R. of the main battery and with all classes of the secondary battery, and subcaliber practice with the 12-inch B. L. R. The shooting was fair to good.

Charts: Are officers familiar with? Has the organization performed boat reconnoissance work in local waters?—All the officers were more or less familiar with charts. The senior officers handled them with an air and aptitude of old acquaintance. The organization has performed boat reconnoissance work in local waters and is now engaged in the same work.

Signalmen.—The battalion has for signal work 1 signal officer, 1 chief quartermaster, and 5 chief petty officers, designated as signalmen of the first class; 6 expert signalmen; 22 qualified signalmen, and 17 fair signalmen who have not yet qualified. Signalmen are detailed from the divisions for instruction, and return to them when qualified. Instruction is progressive in character. Examination for qualification includes ability to read fifty mixed characters in three minutes with flag (no errors allowed); ability to read yardarm signals and Ardois with rapidity; familiarity with the Very and the international codes; ability to read heliograph and flash lantern signals, whistle and bell signals, and to make the heliograph alignments. Expert signalmen are required to go into telegraphy, telephony, and elementary navigation. The equipment of the signal corps has already been stated. The efficiency of the signalmen on board of this ship was excellent.

Automobile torpedoes.—Two officers have taken the course with the torpedo class at the torpedo station. One Whitehead torpedo has just been loaned to this battalion and is on board the *New Hampshire.*

Recommendations and remarks.—We are of the opinion that the annual cruise of one week is entirely too short, and should be of at least two weeks' duration. Also, though it would be impracticable to have the entire force at sea for longer periods, we would suggest that the officers be attached to the various ships for periods of a month or more each year.

Very respectfully,

HARRY PHELPS, *Lieutenant, U. S. N.*
MARK L. BRISTOL, *Lieutenant, U. S. N.*
W. K. GISE, *Ensign, U. S. N.*

Capt. W. C. WISE, United States Navy,
Commanding U. S. Battleship Texas.

NAVAL MILITIA OF NEW JERSEY.

U. S. S. MAINE, FIRST RATE,
Tompkinsville, N. Y., July 31, 1897.

SIR: In obedience to orders from the commanding officer of the battleship *Maine* constituting us a board to inspect the condition and efficiency for service of the Naval Militia of the State of New Jersey and to make the report, according to the requirements of a memorandum a copy of which is herewith inclosed, we have to report as follows:

(1) *Official designation of State Naval Militia.*—Naval Reserve of New Jersey.

(2) *Strength.*—(*a*) Authorized: One captain in command, with a staff of 1 aid, 1 surgeon, and 1 paymaster; two battalions, each consisting of 20 commissioned officers; 9 chief petty officers; 243 petty officers and enlisted men.

The following report refers exclusively to the Battalion of the East, Naval Reserve of New Jersey.

(*b*) Organized: Fifteen commissioned officers; 8 chief petty officers; 186 petty officers and enlisted men.

(*c*) Per cent attending instructions on board, 75.

(3) *Number and stations of battalions.*—The Battalion of the East is stationed on the U. S. S. *Portsmouth*, Hoboken, N. J., and is organized both as a battalion and as a ship's company. The battalion is composed of three divisions, two line and one engineer's, of an authorized strength of 4 commissioned officers and 81 petty officers and men for each division. For the purpose of organization, the two line divisions of the battalion are subdivided into four ship divisions. All the divisions have stations on board ship.

(4) *Appointment and selection of officers—Number of ex-naval officers serving.*—The commander, executive officer, and navigator are elected by a majority vote of all the commissioned officers; the adjutant (aid), ordnance officer, paymaster, surgeon, and assistant surgeon are appointed by the commander; the divisional officers are elected by the men of their divisions. The commanding officer has a veto vote and may refuse to approve a certificate of election, without which approval no commission is supposed to issue. Of the commissioned officers, three are graduates of the Naval Academy: Lieutenant-Commander Craven, Lieutenant Blount, and Lieutenant Mather; one two years and seven months at Naval Academy; one from merchant service with master mariner's papers; one from merchant service, first mate of sailing ship.

(5) *State appropriations.*—The State appropriation varies in amount between $5,200 (the lowest) and $11,700 (the highest) per annum; a fair average would be $7,500. The necessities of the battalion which could not be met out of the Federal allotment or State appropriation have so far been furnished by the citizens of the State and by the battalion itself.

(6) *Armament, character and condition of.*—Main battery: Eleven VIII inch Dahlgren M. L. smooth bore; one converted Parrott, B. L. R. Secondary battery: One 1-pounder Hotchkiss R. F., mark II; two 3-inch B. L. R. (navy howitzer, 350 pounds); one Gatling, long. Of the guns, all the secondary have field carriages. Boat mounts have not been received and are to come out of the United States appropriation.

Small arms: 200 Lee rifles, 2d model, 45 caliber and accouterments; 150 navy revolvers; 150 cutlasses; 150 belts, boxes, and frogs. There are a number of parts missing from the small arms; otherwise the condition of the armament is good.

(7) *Ammunition, character and amount of, on hand.*—For main battery, none. For secondary battery, 187 rounds Hotchkiss, 167 rounds 3-inch B. L. R., 1,000 rounds Gatling. For small arms, 1,000 rounds rifle, 1,000 rounds revolver.

(8) *Equipment, character and condition of.*—The *Portsmouth*, her hull, spars, boats, sails, rigging, battery, apparel, furniture, etc. The boats of the ship include 1 steam cutter, 3 cutters, 2 whale boats, 1 gig, and 1 dinghy. The dinghy is in bad condition; the other boats are serviceable. The signal outfit consists of International Code, Navy numerals, and wig-wag flags.

The *Portsmouth* has an electric plant, but no Ardois signal system, which the officers of the organization wish very much to have.

(9) *Uniforms.*—The uniforms of the officers are similar to those worn in the Regular Navy, except that they do not have gold lace on the sleeve of the blouse, but do have black braid on the trousers. The uniforms of the petty officers and enlisted men are of the navy pattern, all having been received from ships the militia has made former tours on. The pea-jackets have black braid on the pockets. The condition of the uniforms is good.

(10) *Camp equipage.*—(*a*) Tents: Tents can be obtained at any time upon requisition to the quartermaster-general of the State. (*b*) Mess outfit: The battalion owns complete outfit of mess gear.

(11) *Property accountability.*—The regulations of the battalion and the laws of the State provide for property accountability. Chiefs of departments keep regular ledger accounts of everything received or expended, charging them to "Federal," "State," or "Battalion" accounts. Officers are responsible for property under their immediate charge. The men are personally responsible for all articles, uniforms, etc., issued directly to them.

(12) *Subsistence.*—The paymaster has charge of the commissary of the battalion. Mess men are detailed in each division and the master-at-arms has supervision of the mess men. On practice cruises the food is prepared by hired cooks, mess gear being

spread by the mess men. Three days' rations are always on board or immediately available.

(13) *Drills and exercises.*—(*a*) On board ship: Seamanship, compass, log line, boats, signals, ship routine, and discipline. (*b*) On shore: Infantry, artillery, signaling. The men of the engineer's division have technical instruction at Stevens Institute, on steamers of regular lines running out of New York, and in operating and caring for the steam plant on board the *Portsmouth.*

DRILLS ON BOARD THE MAINE.

Drill routine, line divisions.

Forenoon.—First period, from 8.30 to 10; second period, from 10.15 to 11.45.

Afternoon.—First period, from 1.15 to 2.45; second period, from 3.00 to 4.30.

FIRST DAY.

Forenoon.—First period, starboard watch shown round the ship; second period, port watch shown round the ship.

Afternoon.—First period, starboard watch, first and second divisions, 6-inch guns; third and fourth divisions, 6 and 1 pounders. Second period, starboard watch, first and second divisions, 6 and 1 pounders; third and fourth divisions, 6-inch guns.

SECOND DAY.

Forenoon.—First period, port watch, first and second divisions, 6-inch guns; third and fourth divisions, 6 and 1 pounders. Second period, port watch, first and second divisions, 6 and 1 pounders; third and fourth divisions, 6-inch guns.

Afternoon.—First period, starboard watch, instructions in ammunition, compass, new rifle, etc; second period, port watch, instructions in ammunition, compass, new rifle, etc.

THIRD DAY.

At sea.—Target practice, care of clothing, log, and lead lines, etc. After anchoring, instructions in torpedoes.

Drill routine, engineer's division.

FIRST DAY.

Instructions in watch routine, cleaning, water-tight doors, general and fire quarters, and general arrangement of machinery.

SECOND DAY.

Instructions in the general run of piping and operation of all auxiliary machinery. Storing of tools, spare parts, oil, and coal. The different kind of packings used and the method of making adjustments of machinery.

THIRD DAY.

Practical experience in getting under way and while under way.—This routine was practically carried out. It was impossible to have the torpedo instruction after the trip to sea on account of bad weather, which prevented the Naval Militia from returning to the *Maine* after getting their dinner on board the *Portsmouth.*

(14) *Performance of duty.*—The men are intelligent and zealous and are very well up in the management of boats. Their having the *Portsmouth* for their use gives them facilities for this drill. It is also a great help to have a vessel like the *Portsmouth,* which, although it does not contain any modern guns or instruct them in any modern appliances, gives them an opportunity to become used to the ship and to carry on exercises of seamanship.

(15) *Personnel.*—(*a*) Of many classes—clerks, business and professional men, students, mechanics, etc. (*b*) Professional knowledge of some few is fair; of the majority, limited to their opportunities on board the *Portsmouth.* (*c*) In addition to the officers named in paragraph 4, there are two ex-apprentices in the organization. (*d*) Men who follow the sea for a livelihood are not available for this service.

(16) *Discipline.*—We understand that the discipline on board the *Portsmouth* is excellent. We found on board the *Maine* that it was as good as could be expected from such an organization.

(17) *Target practice.*—The target practice at sea on board the *Maine* with the 6-inch guns and the secondary battery was fair. Line shots were very good, but elevation showed a want of experience.

(18) *Charts.*—Lieutenant-Commander Craven, Lieutenant Blount, and Lieutenant Peters are well acquainted with charts; otherwise the knowledge of the officers is limited.

(19) *Signalmen.*—There are two quartermasters, one first and one second class, in each line division, who are required to be qualified signalmen. Two petty officers of the engineer's division are also required to be signalmen, and details are made from each division for instructions in signaling. There are now twelve or fifteen qualified signalmen in the battalion, and each year the number is increasing.

(20) *Automobile torpedoes.*—With one or two possible exceptions, the officers and men of this organization are unfamiliar with automobile torpedoes, no opportunities having been afforded.

(21, 22) As we before stated, we consider the *Portsmouth* is of great use to this organization in enabling them to become used to ship life and carry on the exercises which tend to make sailors. We would recommend that there be more artillery drill than heretofore, and that, in addition to the ship boat drills, boat guns be embarked and landing drill included in the exercises. Our recommendation in regard to the use of ships laid up in ordinary is also reiterated.

Very respectfully,

A. MARIX, *Lieutenant-Commander, U. S. N.*
C. W. JUNGEN, *Lieutenant, U. S. N.*
F. W. JENKINS, *Lieutenant, U. S. N.*

The SECRETARY OF THE NAVY.

NAVAL MILITIA OF PENNSYLVANIA.

U. S. S. MAINE, FIRST RATE,
Tompkinsville, N. Y., July 12, 1897.

SIR: In obedience to orders from the commanding officer of the battle ship *Maine*, constituting us a board to inspect the condition and efficiency for service of the Naval Militia of the State of Pennsylvania and to make the report according to the requirements of a memorandum, a copy of which is herewith inclosed, we have to report as follows:

Official designation of State Naval Militia.—First Naval Battalion, Naval Force of the State of Pennsylvania.

Strength.—(*a*) Authorized: Two battalions, each consisting of four divisions, and one engineer corps. Each division to consist of a lieutenant commanding, 2 lieutenants, junior grade, 2 ensigns, and a maximum strength of 84 petty officers and men; the minimum strength being 42 petty officers and men. The engineer corps is to consist of 1 lieutenant, 1 ensign, and 20 petty officers and seamen. Each battalion to be commanded by a commander, who is to have on his staff a lieutenant commander, a lieutenant for navigator, a lieutenant, junior grade for aid, a surgeon with the relative rank of lieutenant, junior grade, an assistant surgeon, with the relative rank of ensign, and a paymaster with the relative rank of lieutenant, junior grade.

Whenever two battalions shall be fully organized, a captain will be appointed to command them, who will be allowed on his staff an ordnance officer, a navigator, an aid, a surgeon, a paymaster, and a chief of engineers, the rank of which officers to be determined hereafter.

(*b*) Organized: The organized strength at present consists of one battalion of three divisions. Division A, 5 officers and 72 petty officers and men; Division B, 3 officers and 71 petty officers and men; Division C, 5 officers and 78 petty officers and men.

(*c*) Attendance: The only absentees are the paymaster, the assistant surgeon, and six men.

Station.—The three divisions constituting the organized battalion are stationed, respectively, as follows: A and B at Philadelphia; C at Pittsburg.

Appointment and selection of officers—Number of ex-naval officers serving.—The commander, lieutenant-commander, and the navigator are elected by the commissioned officers. The divisional commissioned officers are elected by the division. The aid, surgeon, assistant surgeon, and paymaster are appointed by the commander. The noncommissioned staff are appointed by the commander. There are two ex-naval officers in the present organization: Lieut. Commander George Breed, of the class of 1886, and Lieut. George C. Stout, commanding Division A, of the class of 1883. Lieut. J. G. Rogers is an ex-apprentice, having served four years in the Navy; Ensign Heins, of Division B, served in the Marine Corps.

Appropriations.—Five hundred dollars a year for each division. This has not been paid in cash, but uniforms have been furnished and this appropriation has been used to defray this expense, and the organization is still in debt. Two hundred dollars in cash is given to each division for armory rent in addition to the above appropriation. The city of Philadelphia, in addition to the above, allows each division $500 a year and coal and light for the *St. Louis*. It is understood by the board that the above appropriation for the care of the ship does not defray the running expenses and that the deficiency is made up by contributions from individual members.

Armament—Character and condition of arms and ammunition.—Two 3-inch breechloading howitzers, without boat mounts, both at Philadelphia. There are on hand 113 charges and 26 canister charges for the same. Division A has 74 Springfield rifles, bayonets, scabbards, and belts, with 4,000 ball cartridges. Division B has 69 rifles of the same type, with bayonets, scabbards, and belts. Division C has 84 rifles of the same type, with bayonets, scabbards, and belts, and 2,000 ball cartridges. There are reserved supplies of ammunition for the National Guards both at Philadelphia and Pittsburg. The condition of the armament and accouterments is good and corresponds in every respect with that used by the land force of the National Guard of Pennsylvania, and is issued by the State.

Equipment—Character and condition of boat and signal outfit.—Two 12-oared cutters, two 10-oared cutters, and one whaleboat, at Philadelphia; one 10-oared cutter, at Pittsburg. The boats are in fair condition, but the oars are bad. Each boat has a full set of sails. All the above are loaned to the organization by the Navy Department. The other equipments for the boats were purchased. There are at Philadelphia two signal kits for field work, including two large and two small flags each; at Pittsburg there is the same supply, and also improved torches and canteens for oil; two heliographs. International signal flags and improvised Ardois signal system are on board of each ice boat.

Uniforms.—The uniform of the petty officers and enlisted men is of the naval pattern, with the following exceptions: The collars on the working suits have a star in each corner; the undershirts of the men are blue and white striped, similar to that worn by French sailors, and give their men a different appearance from naval men. The shoes are very bad, being of all shapes and colors, and very few adequate to the services required. The chief petty officers of the Philadelphia Battalion wear blouses similar to the officers. There are some further minor details of unimportance in some uniforms, which are not strictly regulation. The condition of the clothing is good.

Camp equipage.—(*a*) Tents: Tents are issued from the State arsenal at Harrisburg when needed. They are of the army pattern. (*b*) Mess outfit: The Philadelphia divisions are supplied with enameled ironware of the Navy pattern; the Pittsburg division is at present supplied with ordinary crockery ware. Each division is supplied with a sheet-steel galley of sufficient capacity, similar to those used on Western rivers, and has a full equipment of cooking utensils. Of the above most of the outfit has been furnished by each division to itself.

Property accountability.—Each division commander is required to furnish a bond for $1,000 to the State to cover property issued to his command, and he is held strictly accountable for the same, and is required to make return to the State authorities at the semiannual spring inspection, at which time the property in his possession is checked on his return by the State inspector. The regulations are strictly enforced.

Subsistence.—Each division has an acting paymaster's yeoman, who contracts for subsistence supplies under his immediate division commander and the paymaster of the battalion. There are two regular cooks and sufficient messmen enlisted for the division.

Drills, character and scope of.—In Philadelphia the divisions are drilled as infantry, artillery, and in boats. Each division drills on board the *St. Louis*, or in her immediate vicinity in the Delaware River once a week, excepting one month between the spring inspections and the annual tour of duty. In addition to this work, which is compulsory, the following work, which is voluntary, has been done:

Signal corps meets every Friday night in the winter, and every Saturday afternoon during the summer; average attendance, 10. Instruction in wig-wag, international code; heliograph, torches, charts, sailing rules, etc.

Navigation: Lieutenant-Commander Breed conducted a class in navigation, giving ten lectures during the winter; about 8 officers were in attendance.

Division C, of Pittsburg, drills one night each week in infantry tactics; one night each week is devoted to instruction of petty officers, by the officers, in seamanship and rudimentary navigation.

In addition, the four quartermasters instruct men detailed as signal men in the various systems and codes every week.

In Pittsburg the men have boat drills once a week, weather permitting, and once a month during the summer the division is exercised as a flotilla, sufficient boats for this purpose being loaned by towboats, etc.

Instructions during the summer tour consists in embarking on the ice boats furnished by the city of Philadelphia, and leaving there for one week; boat work, land drill, signal drill, knotting and splicing, and chart study for the officers.

DRILLS AND EXERCISES ON BOARD THE MAINE.

The militia officers were exercised at the 10-inch, 6-inch, and 6-pounder guns by having the guns crews from the *Maine* at each gun drilled before them, and the officers of the division instructed the militia officers at the same time. The militia officers then drilled their enlisted men at the 6-inch and 6-pounder guns under the supervision of the naval officers. The enlisted men were drilled in boats by naval cadets, and the different parts of the ship were explained to them by apprentices.

In addition to the above drills the officers of the militia had torpedoes and the new rifle explained to them, and all hands were shown different kinds of ammunition and fuses, all of which were explained to them.

Finally the officers and men were instructed how to take care of clothing on board ship

Performance of duty.—The board understands that the duty is performed cheerfully by members of the battalion, and a very large percentage is always in attendance; that the discipline is good and much enthusiasm is displayed by the crew.

Personnel.—(*a*) Made up of all ranks in life, but it is claimed by the officers of the organization that the members are of a higher intelligence than those of other arms of the National Guard, and that there are many men of high intelligence. In Division A the average age is 26½ years. Twelve have served apprenticeships at trades; 17 have collegiate training, and 18 have served in the militia force of the State of Pennsylvania. In Division B the average age is 21 years. Thirty-five have served apprenticeships at trades; 9 have collegiate training, and 8 have been in the militia service of the State of Pennsylvania. In Division C the average age is 24 years. Nineteen have served apprenticeships at trades; 6 have collegiate training, and 9 have been in the militia force of the State of Pennsylvania. In Division C there is also a mechaniacl engineer, two doctors, a civil engineer, two electricians, a machinist, an apothecary, and three telegraph operators.

(*b*) The professional knowledge, as far as seagoing matters are concerned, is extremely limited, being confined principally to those who will be enumerated under *c*.

(*c*) Three of the commissioned officers of the guard were formerly in the Navy, two having graduated from the Naval Academy and one having been an apprentice; one of the commissioned officers has been in the Marine Corps; three of the enlisted men have served on the school-ship *Saratoga*.

Discipline.—As far as the board was able to judge, the men are subordinate and obedient and the discipline is as good as can be expected of such an organization.

Target practice.—Each division is required by State regulations to qualify 65 per cent of its members with the Springfield rifle; no practice has been had with the howitzers, except in firing salutes and in sham battles.

Charts.—The organization has in its possession charts of the Delaware Bay and its tributaries, and of the North Atlantic coast. These charts are explained to the officers, but as yet no officer is considered proficient in these charts for the purpose of navigation, except Lieutenant-Commander Breed and Lieutenant Stout, who have a Naval Academy graduate's knowledge of the same.

Lieutenant Rhoads seems to have studied charts considerably, but as yet could hardly be considered as able to use them. There has been boat reconnoissance work at Philadelphia, Pittsburg, and in the Delaware River. Commander Brown is very familiar with the waters of Delaware.

Signal men—Organization and efficiency.—The signal corps is organized as follows: 1 signal officer, 1 signal quartermaster, 6 quartermasters (2 for each division), 12 signal men (4 for each division); total, 20. Their equipment is mentioned in paragraph 13, and they are fairly efficient.

Automobile torpedoes, officers' knowledge of.—Two officers have attended the War College course during the summer of 1896, and have endeavored to impart their knowledge to the other officers of the organization. The knowledge of the officers on this subject is very limited.

We further report that in our opinion the time occupied by the Naval Militia in drills on shore and during the summer tour is not well utilized. While on shore a very large part of the time is devoted to infantry drills, and the main object of the Naval Militia seems to be to make as good an appearance on dress parade as the land force of the militia, and to have it said that they march better than the Regular Navy.

If the militia organization were to devote most of its time in infantry to landing from boats and forming on the beach, and also to pulling boats, marline-spike seamanship, especially knotting, the compass and the lead, they would be better fitted for the service they are intended for. Signaling should be frequently drilled.

Regarding the time occupied during the summer, eight days' tour, we do not see how it could be used to a greater disadvantage than it is. The first four days were entirely devoted to the inspection by the State officials, which could just as well be done at any other time of the year.

During the four days that were left for the man-of-war detailed for their use, one more day was devoted to State ceremonies at Cape May. Of the remaining three days, owing to the methods employed, the enlisted men were able to come on board the *Maine* only three hours for each forenoon, and then only two-thirds at a time.

Therefore, during the whole eight days that the *Maine* was placed at the disposal of the militia of the State of Pennsylvania, each enlisted man had only six hours' experience on board that ship; this exclusive of some signal drill in the evening by the signal crew.

We recommend that some method be devised by which the militia organization can remain on board a man-of-war and do the actual work and the drills of a man-of-war during the whole period allowed them by the State.

It appears to this board that the vessels laid up in reserve could as well be used for this purpose, having on board a sufficient number of officers and men to instruct the Naval Militia. Should the Department consider it advisable to move these vessels at times, it would only be necessary to send a regular engineer's force on board, and let the Naval Militia do the ship's work. A regular man-of-war in commission could only be used for this purpose by sending to a receiving ship, temporarily, the marines and a sufficient number of the seamen force to make room for the militia. We consider one division a sufficiently large body to be instructed on board of any ship at one time.

Regarding the supply in equipment on hand, we would recommend that more boats be supplied, especially to the Pittsburg division, and that each division be furnished with two landing guns and field carriages of a standard naval pattern.

We further recommend that the purpose of the Naval Militia be clearly defined to them by the Navy Department, and that the exact nature of the annual drill be decided upon in advance, so that the men may prepare themselves beforehand for this drill.

A set of about six drill books and other Navy Department publications of interest to the Naval Militia, if furnished to each division, will be of great value to them.

Very respectfully,

A. MARIX, *Lieutenant-Commander, U. S. N.*
C. W. JUNGEN, *Lieutenant, U. S. N.*
F. W. JENKINS, *Lieutenant, U. S. N.*

The SECRETARY OF THE NAVY.

U. S. S. MAINE, FIRST RATE,
Tompkinsville, N. Y., July 15, 1897.

SIR: In forwarding the report of the board on the Pennsylvania Naval Militia I can not wholly agree with its conclusions and, therefore, can not wholly approve the report, which is of a nature rather tending to discourage future efforts of the organization concerned.

In view of the fact that naval officers themselves can not foresee the exact channel of development of the Naval Militia it is not strange that the latter should make mistakes in the employment of its time.

The accompanying report, under the head of "Drills and exercises on board the *Maine*," fails to state adequately the amount of work done by the Pennsylvania Naval Militia in connection with the *Maine*. My letters of July 7, 8, and 9, 3-97 B., 13-97 B., and 18-97 B., respectively, should be referred to.

The willingness of officers and men to learn and to work was admirable. The organization has had difficulties to contend with not known to the naval service. Much credit is due to the higher officers, especially the commanding officers, for their persistent efforts to maintain and advance their organization.

The idea of securing the use of the large Philadelphia ice boats for the summer exercises was a happy and suggestive one.

Some items of the report on page 7 are not sound. The *Maine*, under her orders, was not available to the Naval Militia for more than four days—July 7 to July 10, inclusive.

During that time she was obliged to cover considerable distances under way in the daytime because of her deep draft, the rise and fall of the tides, and narrowness of the channel in Delaware Bay.

The militia was not responsible for this state of things, except that the itinerary was made up by them in advance, and did not take note of governing conditions in a nautical sense.

The interests of the United States Government and of the Naval Militia would have been better served had all the work been done in the locality of Lewes, Del. The landing of the militia at Cape May July 10 was not to the liking of the commanding officer of the force, who is able and earnest, and understands how much strain his force can bear in the present state of its development.

Very respectfully,

C. D. SIGSBEE,
Captain, U. S. Navy, Commanding U. S. S. Maine.

The ASSISTANT SECRETARY OF THE NAVY.

NAVAL MILITIA OF MARYLAND.

U. S. S. CINCINNATI, SECOND RATE,
Tolchester Beach, Md., July 23, 1897.

SIR: In obedience to your order, appended and marked "A," and the instructions issued by the Department appended, marked "B," to boards appointed to report upon the condition and efficiency for service of the Naval Militia, we have the honor to submit the following report on the Maryland Naval Militia, which received instructions on board this ship from July 19 to July 23, 1897, inclusive.

(1) First Naval Battalion Maryland National Guard.

(2) (*a*) Authorized: 1 commander, commanding officer; 1 lieutenant-commander, executive officer; 1 lieutenant, navigator and ordnance officer; 4 lieutenants, divisional officers; 4 lieutenants (junior grade), divisional officers (junior); 8 ensigns, divisional officers (juniors); 1 ensign, captain's aid; 1 surgeon, rank of lieutenant; 1 assistant surgeon, rank of ensign; 1 paymaster, rank of lieutenant; 1 assistant paymaster, rank of ensign; 1 passed assistant engineer, rank of lieutenant (junior grade); 1 assistant engineer, rank of ensign; 1 chaplain, rank of lieutenant; 324 seamen and petty officers.

(*b*) Organized. 1 commander, commanding officer; 1 lieutenant-commander, executive officer; 4 lieutenants, divisional officers; 2 lieutenants (junior grade), divisional officers (junior); 5 ensigns, divisional officers (junior); 1 ensign, captain's aid; 1 surgeon, rank of lieutenant; 1 assistant surgeon, rank of ensign; 1 paymaster, rank of lieutenant; 1 assistant paymaster, rank of ensign; 1 past assistant engineer, lieutenant (junior grade); 1 chaplain, lieutenant; 1 boatswain; 1 gunner, and 1 pay clerk (selected by commanding officer from the 324 seamen and petty officers allowed by law); 210 seamen and petty officers.

The cruise was voluntary and the men served without pay or rations from the State, and in many cases the pay of the men for the time they were absent was checked against them by their employers.

Attendance, 15 officers, 134 men; percentage 64.2.

(3) One battalion, consisting of four divisions of 50 men and 4 officers each, stationed on board the *Dale* at Baltimore, Md.

(4) Officers are elected by the divisions. There is one ex-naval officer serving, but he had been in the battalion but one week at the time the militia reported for instruction.

(5) There is an appropriation of $5,000 a year by the State.

(6) One hundred and eighty Lee rifles, belts, and bayonets, and 800 magazines; 58 Colt's revolvers and holsters; 2 Driggs-Schroeder 1-pounder R. F. guns, Mark II and III; 2 3-inch brass howitzers (B. L.), Nos. 1 and 4; 72 cutlasses and belts. All the above articles belong to the Navy Department, and were found to be in satisfactory condition.

(7) Sixty canister for 1-pounder; 58 common shell for 1-pounder; 75 saluting charges for 1-pounder; 45 saluting charges for 3-inch; 150 rounds .38 revolver ammunition; 3,000 rounds .45 ball cartridges; 2,000 rounds .45 blank cartridges.

(8) Two steam launches; 3 12-oared cutters; 1 10-oared cutter; 2 whaleboats; 3 dinghys; 1 gig; 1 set boat flags, for signals; 1 signal kit; 1 modified Ardois; 6 wigwag flags; 75 singlesticks; mess outfit, hammocks, and blankets for 150 men.

The modified Ardois mentioned above is an ingenious invention by Lieut. L. F. Smith, consisting of four white oil lights, each light being fitted with two cylindrical screens, one red and the other opaque, drawn down against the action of a spring, for use on small vessels not fitted with an electric plant.

(9) The officers have provided themselves with the following uniforms of naval pattern: One sword belt and shoulder straps, 1 blue cap, 1 white cap, 1 suit blue service, 1 suit white service, 1 white working suit of pattern as worn at the Naval Academy for battalion drills, 1 undress coat, 1 social-intercourse coat.

The men are provided with the following uniforms of naval pattern: One suit of blue, 1 white working suit, 1 pair leggings, 1 white hat, 1 lanyard, 1 peajacket, 1 pair woolen knit gloves, 1 flat cap, 1 neckerchief, 1 jackknife.

The State furnishes each man with the above uniforms and each officer with one blue cap and one suit of blue service.

(10) The militia has no tents or camp equipage.

(11) The organization by a code of regulations under State law is responsible to the State for the property under their cognizance, and these laws are said to be strictly enforced by fine and imprisonment.

(12) The subsistence was purchased by the pay department, with the money subscribed by officers, and was brought each day from Baltimore and prepared on board the *Dale* by cooks hired for the purpose. The men were fed at a cost of 30 cents per day per man with apparent satisfaction.

(13) The programme of exercises on board ship and on shore was as follows:

FIRST DAY—MORNING.

The men of the militia became familiar with the location of the magazines, shell hoists, guns, etc., of the *Cincinnati*, and were then instructed in the mechanism of the guns and in the care to be exercised in handling explosives and the manner of flooding the magazines in case of fire.

A short preliminary drill at stations at battery was also given. The engineer's force was instructed in the engineer department.

FIRST DAY—AFTERNOON.

The board visited the *Dale* and inspected the crew and ship at quarters and witnessed drill at artillery and infantry, which was very creditable considering the limited space the men had for drilling. The board inspected the ordnance outfit and equipments and found them in good condition.

The board was shown papers submitted by officers of the organization to the commanding officer setting forth plans for the defense of Baltimore and its vicinity under certain hypothetical conditions of the position and strength of the enemy. In preparing these papers the officers did considerable boat-reconnoissance work within 40 to 50 miles of Baltimore.

SECOND DAY—MORNING.

The morning was devoted to battery drill and instruction.

SECOND DAY—AFTERNOON.

Exercised at general quarters, and gave instruction to officers and men concerning collision and fire in action. The surgeon gave instruction to each division in first aid to the wounded and methods of transportation.

THIRD DAY—MORNING.

Exercised four cutters under oars with a coxswain from the *Cincinnati* in each boat to instruct the men.

THIRD DAY—AFTERNOON.

Subcaliber practice for three hours on board ship and target practice with the Driggs-Schroeder 1-pounders from two cutters.

FOURTH DAY—MORNING.

Subcaliber on board and target practice with 1-pounders from cutters continued.

FOURTH DAY—AFTERNOON.

Boats under oars and exercise at signals.

At night a boat attack by pulling boats and steam launch on *Cincinnati*. The attack was limited to one hour and the *Cincinnati* had no trouble in picking up with her search lights the pulling boats which were painted white. The launch was painted lead color and was not seen during the attack. Eight minutes after the search lights had been turned off she came alongside without being seen. The officer in command of the launch stated that the search lights were turned on the launch as long as ten seconds at a time, but she was not seen from the ship.

FIFTH DAY—MORNING.

Torpedo firing and drill. Inspection of the militia on board the *Cincinnati* by the governor of Maryland and the adjutant-general, followed by a drill at general quarters.

FIFTH DAY—AFTERNOON.

The *Dale* sent a landing party to attack a position on the bluff. The landing was covered by the fire from the *Cincinnati* and the 1-pounders in cutters. The landing party was composed of infantry and artillery (two pieces). The position on the bluff was finally taken.

(14) The officers and men were zealous and showed aptitude for the work, but on account of having no officer of the Navy or ex-officer of the Navy attached to the battalion they were not familiar with the customs of the regular service. Under the instruction received they soon showed a marked improvement and a desire to conform to the methods of the service.

(15) (*a*) The officers are men of intelligence of the various professions, among them being lawyers, professors, consulting engineers, architects, and leading business men of Baltimore. The chief petty officers and petty officers are men occupying positions in business houses requiring intelligence and executive ability. The seamen are all young, active, and energetic men.

(*b*) The theoretical knowledge of the officers gained from the books issued to them by the Department is good. One officer has taken the torpedo course at Newport.

(*c*) One.

(*d*) None.

(16) The discipline when the battalion reported for instruction was not satisfactory, nor did the officers seem to have sufficient control over the men; but toward the close of the week there was a marked improvement, due no doubt to the opportunity of observing the discipline of the regular service.

(17) The target practice was good.

(18) Most of the officers are familiar with charts and have performed boat reconnoissance work in local waters.

(19) The signal men are taken from each division and the instruction in signaling is on a divisional basis. There is no separately organized signal corps, and no officer is specially detailed as signal officer. They are not profficient in signaling. The equipment was good.

(20) One officer has taken the torpedo course at Newport.

(21) The board recommends that the battalion make an earnest effort to obtain from the city a suitable place for drill, as the space on board the *Dale* is too limited to admit of good results It is believed that a spirit of rivalry between the different regular boats' crews of the divisions would tend to greatly increase the efficiency of the boat work, and it is recommended that small prizes be offered by the battalion for pulling and sailing races.

(22) The board is entirely satisfied with the zeal and aptitude displayed by both officers and men, and feels that defects criticised are largely due to the fact that the battalion has not had the services of officers trained in the Navy.

Respectfully submitted.

C. A. GOVE, *Lieutenant, U. S. Navy.*
HARRY P. HUSE, *Lieutenant, U. S. Navy.*
W. V. POWELSON, *Ensign, U. S. Navy.*

The COMMANDING OFFICER.

U. S. S. CINCINNATI, SECOND RATE,
Navy-Yard, New York, July 26, 1897.

SIR: Referring to your letter No. 71206, dated June 3, 1897, I have to inform you that I communicated with the adjutant-general of the Naval Militia as directed, and in compliance with instructions am pleased to forward copies of all correspondence with him.

The programme of exercises as specified in the report of the board forwarded herewith was as complete as could be carried out in the time allowed, and in my opinion proved of much benefit to the officers and men under instruction, who evinced a zeal and interest in their work satisfactory to the instructors and myself.

Very respectfully,

E. M. SHEPARD,
Captain, U. S. Navy, Commanding.

The ASSISTANT SECRETARY OF THE NAVY,
Washington, D. C.

NAVAL MILITIA OF GEORGIA.

U. S. S. WILMINGTON, THIRD RATE,
Jacksonville, Fla., July 26, 1897.

SIR: In obedience to your orders of July 1, we respectfully submit the following report upon the Georgia Naval Militia:

The *Wilmington* anchored off St. Simon's Island at 9.30 a. m. Thursday, July 15, the militia coming down from Brunswick on steamer *Catlin* at the same time.

During the afternoon of Thursday 13 officers of the militia reported on board and were conducted over the ship by the officers composing this board. Each officer was furnished with a copy of each of the following papers: "Description of the ship," "Detailed descriptions of the ordnance," "Detailed drill of 4-inch and 6-pounder and 1-pounder guns." Owing to mismanagement the tents for the militia had not arrived on this day, and the militia were quartered on board the *Passaic* for the night.

Friday, July 16.—It had been understood that the militia were to report on board at 8.30 a. m., but it was 9.30 a. m. before all were on board ready for drill. Strength, 8 officers, 67 men. The four divisions were then stationed and drilled at the battery of the *Wilmington* and at their duties at general quarters. Their stations were as follows: First division (Brunswick) at the forward 4-inch and 6-pounder guns; second division (Savannah) at the two after main deck 4-inch and 6-pounder guns; third division (Savannah) at the two quarter deck 4-inch and 1-pounder guns; fourth division (Brunswick) at the powder division.

At 11.30 sent the militia on shore. Their tents having arrived they were given the afternoon in which to establish their camp. Lieutenant Bertolette, taking with him First Sergeant O'Rourke, U. S. M. C., was of much assistance in establishing a camp routine, instruction as to guard duty, etc.

Saturday, July 17.—At 6 a. m. a detail of 2 officers and 12 men of the Savannah contingent started in the *Wilmington's* first cutter on a reconnoissance of St. Simons Island, returning about 6.30 p. m. At the same time a detail of 2 officers and 12 men of the Brunswick contingent started in the second cutter on a reconnoissance of Jekyl Island, returning at 4.30 p. m. Tracings of the results are forwarded herewith.

Sunday, July 18.—Capt. O. J. Brown, U. S. A., acting adjutant-general of Georgia, visited ship.

Monday, July 19.—Militia arrived on board at 8.45 a. m. in force, as follows:

	Officers.	Men.
First Division	2	9
Second Division	4	24
Third Division	4	23
Fourth Division	3	20
Total	13	76

The changes in the personnel of the Brunswick contingent were such that it was necessary to go over much of the detailed instructions of Friday, the 16th. At 10 a. m. went to general quarters and fired the 4-inch and 6-pounder guns of the starboard battery at a target at 1,500 yards, allowing each gun captain two shots. The 6-pounder shooting was good. The 4-inch shooting was poor, due to smoke and unfamiliarity with the telescopic sight. The fourth division, which had been the powder division, changed place with the first division, and, having been instructed in its duties, fired at the target. At 11.30 landed the militia. At 4 p. m. the board made an official inspection of the camp on shore. Strength, 12 officers, 87 men.

Tuesday, July 20.—Owing to expected arrival of infantry regiment at the camp the Brunswick contingent was obliged to vacate its tents and move on board the *Passaic* during this forenoon.

At 8.30 the Savannah contingent came on board, and after being stationed in the ship's boats were exercised at boat drill in obedience to signals from the ship. Later, they were exercised in firing at a target from first and second cutters, using 1-pounder Hotchkiss, beginning at 1,000 yards and pulling toward the target. At 2.30 the Brunswick contingent reported on board from the *Passaic* and were exercised in first and second cutters in shooting at target with 1-pounder Hotchkiss. Their number was not sufficient to man the ship's boats; hence boat drill was omitted.

The questions of the "Memorandum for boards appointed to report upon the conditions and efficiency for service of the Naval Militia" are answered as follows:

(1) Naval Battalion, Naval Militia, Georgia Volunteers.

(*a*) Four divisions of 60 men and 4 officers each; total, 16 officers and 240 men.

(*b*) Two divisions at Brunswick, 8 officers and 40 men; two divisions at Savannah, 8 officers and 60 men; total, 16 officers and 100 men.

(c) Seventy-six per cent of organized force, about 35 per cent of authorized force.

(3) At present there is no battalion organization. There are two divisions at Brunswick and two divisions at Savannah. The local feeling is so strong that they have been unable to unite on officers for a battalion organization.

(4) Division officers are originally elected by the men and then commissioned by the governor. Battalion officers are to be elected by the division officers when sufficient unity can be reached to attain this result. No ex-naval officers. No appropriation beyond transportation and 75 cents per diem for each officer and man while in camp (seven days this year).

(6) There are 200 Lee .45-caliber rifles, recently loaned by the Navy Department, with leggings, belts, haversacks, and canteens. Condition of rifles, fair. Under this heading of armament may properly come the U. S. S. *Passaic.*

On the morning of July 17 Lieutenants Cutler and Bertolette inspected the monitor *Passaic,* loaned to the State of Georgia by the Navy Department. Her underwater body was excessively foul, a condition beyond the power of the militia to prevent. She was anchored by three anchors and one kedge, all planted in the same general direction. This produced a foul hawse which, owing to the limited outfit of ground tackle, will probably require the services of wreckers to clear.

On board the *Passaic* were two seamen and one fireman, furnished as care takers by the General Government. The inspecting officers discovered no evidence that the two seamen had made any attempt whatever to earn their pay. A report concerning these men has been made by Lieut. F. D. Aiken, senior officer of the Naval Militia, to the commander of the *Wilmington,* and it is earnestly hoped that these men may be replaced.

The internal condition of the *Passaic* showed neglect and utter lack of system, excepting in the engine room and fire room, which, but for ashes in and in front of the ash pits, were in good condition. Engine-room bilges were clean. Since being turned over to the State of Georgia the *Passaic* has been in the custody of the Brunswick contingent of the Naval Militia, the commander of which is also the senior Naval Militia officer of the State. Little or no use has been made of this vessel since her reception. No station bill of any kind is in operation; she is not used as an armory; her guns have never been run in and out; nor has the turret been moved. Her boats were dirty and neglected. Hammocks, haversacks, canteens, white bags, and a supply of .50-caliber ammunition were found littered about the berth deck and staterooms.

It is just to state that the main engines had been turned as recently as April, 1897, and that the boilers were filled with fresh water. The auxiliary engines and pumps have been run frequently, and except for the ashes before referred to the fireman has done his duty.

We could find no evidence of any drills having taken place on board the *Passaic,* and the Brunswick contingent has never been aboard her as a body. Her chief use seems to have been as an occasional lodging house. We fail to see that the General Government has received any return whatever for its loan of the *Passaic.*

(7) No .45-caliber ammunition whatever; 2,000 rounds .38-caliber revolver ammunition.

(8) Two hundred leggings, haversacks, canteens, and white bags in good condition; 200 rifle belts, dirty and greasy, in which condition the militia claim to have received them about July 1, 1897. Each officer has a revolver; condition good. Savannah divisions have no boats. Brunswick divisions have *Passaic's* boats. There are no proper signal outfits. Small wigwag flags have been made and used in the armories.

(9) The petty officers and enlisted men have blue uniforms and white working suits and white hats. These are in general accordance with navy patterns.

The officers have the blue service uniform, and some have the white also. These approximate to the navy patterns. Condition of all uniforms good. Uniforms have been purchased by the officers and men.

(10) (a) Tents and mattresses are furnished by the State upon requisition of the commanding officer. A State officer of the quartermaster's department has charge of tents and mattresses.

(b) Mess outfits are purchased by the different divisions. Those brought by the Savannah divisions were of enameled ironware. The Brunswick divisions' were of china and unserviceable; they claimed, however, to have a tin outfit which they had not brought. State furnishes stoves.

(11) Commanding officers of divisions are responsible for all divisional property and accouterments. Property is kept in the armories. Beyond the responsibility of commanding officers there are no regulations.

(12) The State allows each officer and man 75 cents per diem during the encampment and furnishes the transportation. It also furnishes two cooks to each division. The food supply of each division is intrusted to a commissary-sergeant or other man detailed from the division. Fresh provisions were supplied from Brunswick.

(13) The drills throughout the year are confined to infantry. Divisions assemble once a week for drill in armories, for which they pay rent. Drills are discontinued in the summer. The early pages of this report will show the nature of the drills on the *Wilmington*, and the appended pages will show the extent of instruction given. The drills on shore were confined to company drill in close order, guard mounting, and dress parade. No division had ever drilled in extended order.

(14) As a rule the men are interested, willing and anxious to learn. On board ship they perform their duty with intelligence and spirit. As a rule the officers did not display as much spirit and snap as their men. The officers and men were totally ignorant of camp duties and camp routine. The divisions went into camp apparently without any previous preparation in the various routine duties. The discipline was lax. The camp was generally boisterous, and the men on guard were slouchy on post and careless in regard to their responsibilities. The rigidity of the camp routine was disturbed by the habitual absence of men from camp. The sobriety of the camp was exceptionally good. The camp was named "Camp Roosevelt."

(15) (*a*) Of the 181 men composing the force as organized, 127 are of the professional, mercantile, and clerical class and 54 of the working class. They are of fair physique and good intelligence. (*b*) Little or none. (*c*) Five. (*d*) Twenty-four.

(16) That of the Savannah division was good. Of discipline in the Brunswick contingent there was little. Officers and men went and came freely during the encampment between St. Simons Island and Brunswick, and men belonging to the organization visited the camp frequently in civilian's dress, but took no part in the work. The officers of the Savannah divisions seemed more earnest and to have a better idea of the object of the Naval Militia than their companions of Brunswick. The latter were too near their homes to enter properly into the work. The senior officer of the Georgia Naval Militia, Lieutenant Aiken, of Brunswick, was not on board the *Wilmington* at any of the drills, but turned the force over to Lieutenant Colding, of Savannah, the next in rank.

(17) The Savannah divisions had subcaliber practice on the *Amphitrite* in June, 1896. No firing since. Sixty-three officers and men of the Brunswick divisions had target practice early in the present year with 50-caliber Springfield rifles.

(18) In general the officers have had no opportunity of familiarizing themselves with charts. One-fourth of them, however, showed in the reconnoissance work of July 17 that they could rapidly acquire this knowledge. No boat-reconnoissance work prior to July 17.

(19) There is no organization of signalmen, and no equipment other than small wigwag flags. Found three men who were good at wigwagging and two others who were fair.

(20) No officers or men were familiar with auto-mobile torpedoes.

(21) (*a*) A set of large scale charts embracing the entire coast of Georgia. (*b*) The commanding officer (when determined upon) to be supplied with drawing board, drawing instruments, rulers, paper, and a table of conventional signs for topographical work. (*c*) Two cutters with oars, masts, and sails to be supplied to each division. (*d*) One 1-pounder Hotch with field carriage, boat mount, and ammunition to each division. (*e*) One army signal kit to each division. (*f*) A supply of 45-caliber ammunition. (*g*) Transfer of *Passaic* to Savannah.

Annual encampment to be at some suitable point on Sapelo Sound, to which place the divisions should proceed in their own boats via inland channels.

(22) It is the understanding of this board that the chief objects of a State Naval Militia are:

First. A thorough knowledge of the State's seacoast, including its navigable rivers, sounds, and inland channels, the latter being, in the case of Georgia, of the greatest importance, as they parallel the entire seacoast.

Second. The utilization of all ordnance material—in this case, the *Passaic*, 200 Lee rifles, and the officers' revolvers. Under proper organization the *Passaic* should be so cared for and battalion so organized that the one thing needed for her utilization as a floating fortress would be the delivery of her ammunition by the General Government.

Third. A projected system of signaling, including telephone and telegraphs, to bases of supplies; establishment of war ranges, destruction of peace ranges, and removal of buoys.

Fourth. A projected scheme of torpedo defense, to include mines and automobile torpedoes.

Fifth. Collection of data and information relative to transportation by land and sea of troops, munitions of war, provisions, etc., to designated points on the coast. Tabulation of merchant vessels available as transports, means of arming them, etc.

Of these five objects the first and second can be achieved at once under proper organization, and much concerning the others can be determined by a thorough carrying out of the first.

Regarding the second object, we recommend that the *Passaic* be turned over to the Savannah divisions, the Brunswick divisions having totally failed to appreciate her or benefit by her presence. We believe the locality of Brunswick to be incapable of furnishing two divisions of 4 officers and 60 men each. One full division is as much as could be expected of a town of its size. If, however, cooperation could be attained, Brunswick and Darien together should be able to furnish an additional division.

Savannah, by its size and commercial importance, is the natural headquarters of the Georgia Naval Militia, and the commanding officer should be a resident of that city. Savannah divisions should easily be recruited to full strength. If, however, this battalion of Naval Militia is to be anything of a success, unity must be obtained. At present this does not exist, the eight officers of Brunswick voting against the eight officers of Savannah on the question of battalion organization, and a deadlock resulting.

The evil of having an encampment near the home of a large fraction of the force has been shown in this summer's location. Only 7 miles from Brunswick, the lack of discipline was such that the Brunswick men went and came at will.

Sapelo Sound is an ideal point for the encampment of the Georgia militia. It has the best harbor on the Georgia coast; it is midway between Savannah and Brunswick; it can be easily reached by inland waters; it possesses no outside attractions to divert officers and men from the work in hand.

PROPOSED ORGANIZATION OF GEORGIA BATTALION NAVAL MILITIA.

One lieutenant-commander; 1 adjutant, rank of lieutenant, senior to all other lieutenants; 1 ordnance officer and navigator, rank of lieutenant; 1 commissary or paymaster, rank of lieutenant; 1 surgeon, rank of lieutenant; 1 ensign, signal officer; 1 lieutenant, 1 lieutenant (junior grade), and 1 ensign to each division; four divisions of 60 men each.

While it is possibly beyond the power of this board to suggest the personnel of a scheme of reorganization of this body of men, we are prepared to make such suggestions in case the consent of the militia officers could be obtained.

We see little likelihood of unity except on some such basis, i. e., neutral arbitration.

Respectfully submitted.

WILLIAM G. CUTLER,
Lieutenant and senior member.
L. C. BERTOLETTE,
Lieutenant and member.
HENRY S. RITTER,
Ensign and member.
C. BAILEY,
Ensign and member.

Commander C. C. TODD, U. S. Navy,
Commanding Wilmington.

U. S. S. WILMINGTON, THIRD RATE,
Fort George, Fla., August 6, 1897.

SIR: I forward herewith, approved, the report of the board of officers appointed to supervise the instruction of the Georgia State Militia near Brunswick, beginning on the 15th ultimo.

In the performance of this duty all the members of the board evinced great zeal, high intelligence, and good judgment. They entered into the work believing they could assist in building up a great support for the Navy in time of need, and directed their efforts to carry out in letter and spirit the wishes in regard to this organization.

While the report of the board gives the physical stand as fair, it will probably be better stated that about 60 per cent of the personnel would pass the Navy requirements. Apparently the desire to fill the required quota has caused many of indifferent physique to be enrolled. In my opinion this matter calls for attention.

The reconnoissance charts made by the two divisions, with explanatory letters, are sent under separate cover.

The present lack of harmony in this naval militia organization calls for careful consideration by the Department. It is deplorable, but exists to a marked degree; and so long as present conditions exist efficiency as a whole can not be attained, and even the minor organizations must suffer.

The members of the organization as a whole seemed to highly appreciate what the Department had done for them in sending the *Wilmington* for their instruction, and expressed their appreciation of the efforts of the members of the board, but they could not put out of sight, even for the time being, their bickerings, and consequently the existence of such feeling was evident to all who closely observed their work.

Very respectfully,
C. C. TODD,
Commander, U. S. Navy, Commanding.

The ASSISTANT SECRETARY OF THE NAVY.

NAVAL MILITIA OF LOUISIANA.

U. S. S. MONTGOMERY,
Tompkinsville, Staten Island, N. Y., August 27, 1897.

SIR: In obedience to your order we have the honor to report as follows on the condition and efficiency for service of the Naval Militia of the State of Louisiana.

The following programme of instruction was arranged and carried out:

August 9—4 p. m.: Naval Militia arrived at Ship Island; 8 to 9 p. m.: Instruction at search lights and night signals.

August 10—9.30 to 11.45 a. m.: Battery instruction and drill; 1.45 to 3.30 p. m.: Battery instruction and drill.

August 11—9.30 to 11.30 a. m.: General quarters; 2.30 to 5 p. m.: Instruction at revolvers, signals, singlesticks, lead, log, boats under oars. Sent crew of Naval Militia over the masthead.

August 12—10.45 a. m. to 12 m.: Subcaliber and revolver practice; 1.30 to 5 p. m.: Subcaliber, rifle and revolver practice.

August 13—10 to 11.30 a. m.: Target practice with main battery; 2.45 to 4 p. m.: Target practice with 6-pounders.

August 14—11 to 11.45 a. m.: Inspection of ship for instruction regarding construction and subdivision of compartments; 4 p. m.: Naval Militia sailed.

The average attendance of militia during the course of instruction was 10 officers and 80 men.

Referring to the memorandum prepared at the Navy Department for the guidance of the Board:

(1) *Official designation of State Naval Militia.*—First Naval Battalion, Louisiana State National Guard.

(2) *Strength: (a) Authorized; (b) organized; (c) per cent attending instruction on board.*—(*a*) One brigade composed of two battalions, each battalion composed of four divisions, each division to have a maximum of 50 petty officers and men, a minimum of 36.

(*b*) One battalion of four line divisions and one engineer division; a band of 12 persons and a drum corps of 7 men and 1 bugler are also a part of the organized battalion. Each line division has an average of 45 men. The engineer division, a list of which is appended, is composed of 24 men arranged in three sections, each section composed of machinists, water tenders, and oilers. The commissioned officers of the battalion are: One commander, 1 lieutenant-commander, 1 lieutenant (navigating, ordnance, and equipment officer); 1 lieutenant, 1 lieutenant (junior grade), and 1 ensign to each of the four divisions; 1 ensign and signal officer, 1 passed assistant surgeon, 1 assistant surgeon, 1 passed assistant paymaster, 1 passed assistant engineer. The petty officers, in addition to the chief machinist, are: One apothecary, 1 pay yeoman, 1 chief master at arms. The apothecary has under his charge a corps of six baymen.

(*c*) *Per cent attending instructions on board.*—Fifty.

(3) *Number, organizations, and stations of brigades, battalions, and divisions.*—One battalion of four line divisions and one engineer division, with band and hospital corps. Stationed at New Orleans, La.

(4) *How are officers appointed or elected?—Number of ex-naval officers serving.*—Division officers are elected by a vote of the entire division; then examined. Staff officers are appointed by the commander. The commanding, executive, navigating, and signal officers are elected by the line officers of the battalion. One ex-naval officer.

(5) *State appropriations.*—Share in appropriations for State National Guard, according to the number in attendance at drill and muster. The share amounts to from $1,200 to $1,500 a year.

(6) *Armament, character and condition of (to include articles coming under the cognizance of the Bureau of Ordnance, whether purchased or borrowed).*—One hundred and fifty Springfield rifles, caliber .45; 11 cutlasses, 50 singlesticks; condition good.

(7) *Ammunition, character and amount on hand.*—None on hand. Ammunition is obtained as required from the State arsenal.

(8) *Equipment, character and condition of (to include boats and signal outfit).*—Army cartridge box, of McKeever type, belt, bayonet and scabbard, knapsacks and canteens, haversacks, mess gear, and all camp outfits are obtained from the State arsenal. The amount on hand is sufficient to equip only about half the National Guard. The signal outfit contains four army signal kits, just received and in excellent condition. In regard to the boat outfit, there are now being built at Boston, Mass., two standard 30-foot cutters, with complete outfit for rowing and sailing.

(9) *Uniforms, character and condition of.*—(Particular attention to be paid to the uniform of petty officers and enlisted men, as they must be provided with uniforms of a naval pattern before the organization can share in the allotment of the national

appropriation for arming and equipping the Naval Militia.) Officers: Blue service, made exactly according to Navy Regulations, prior to the regulation just issued, except the cap device, a pelican and nest being substituted for the eagle and shield. White duck uniform, also according to Navy Regulations. Enlisted men: Each man is provided with one blue suit, one white working suit, one cap, and one white cap cover, all made according to Navy Regulations, with the exception of the cap ribbons, which are marked, "1st Naval Battalion L. S. N. G.," and the rating device, which consists of a pelican instead of an eagle. All of the above uniforms are in good condition. They are provided by special appropriation from the State, which is barely sufficient to uniform the battalion as now organized.

(10) *Camp equipage, (a) tents, (b) mess outfits.*—Answered in 7.

(11) *Property accountability: Are there any regulations in regard to? Are they strictly enforced?*—The commander of the battalion gives a bond for the safe-keeping of the arms and equipments and for their return when demanded. The bond is twice the amount of the value of the equipments. The regulations are enforced, the law being carried out.

(12) *Subsistence: How furnished; how prepared.*—The appropriation is totally insufficient for the running expenses of the battalion. The commander can not order out his battalion on a cruise, as it is entirely voluntary on the part of the enlisted men whether or not they go. They are paid nothing for subsistence or for their services. When employed for the purpose of quelling a riot, however, they are paid for service and also allowed subsistence. To meet the expenses of the present cruise an entertainment was given, which, however, was insufficient, the remainder being made up by soliciting subscriptions.

(13) *Character and scope of drills and instructions given: (a) On board ship; (b) on shore.*—(*a*) As outlined in the first part of this report. (*b*) Up to the present time the drills have been confined to infantry, as the battalion has only possessed rifles until the week previous to coming on board the *Montgomery*.

Lectures have been delivered to the battalion by the commanding officer on the following subjects: Construction of boats, nomenclature, styles of boats used, rigs, handling under oars and sails in all kinds of weather, compass, charts, leads, logs, chronometers, plain sailing, use of Bowditch and Nautical Almanac (without practical application, owing to lack of instruments of all kinds).

(14) *Performance of duty and remarks on.*—Officers: Excellent in every respect. Enlisted men: Obedient and respectful, but, with a few exceptions, were also slow in carrying out orders. An average of two-thirds of each division attended drill, at least twice a month. About half of each division attended drill every week, and sometimes twice a week. The age of the enlisted men ranges from 47 to 18 years; the average being about 24.

(15) *Personnel: (a) Class of men composing the organization; (b) professional knowledge; (c) number who have served in the Navy; (d) number belonging to the seafaring class.*—(*a*) Mostly employees in business houses, nearly all callings in life being represented. (*b*) All the machinists are licensed marine engineers. Water tenders and oilers are men who work in machine shops and foundries. For the remainder, limited to what they have learned on board the *Raleigh* and *Montgomery* and what was taught them on shore at drills and lectures. A few have acquired a certain amount of seamanship on board yachts. (*c*) Three. (*d*) Twelve or fifteen.

(16) *Discipline.*—Excellent. Far better than that of any other similar organization that has previously come under the observation of the members of the board.

(17) *Target practice.*—Small-arm target practice has been held twice during the last year with Springfield rifle. The attendance was small on account of the expense.

(18) *Charts: Are officers familiar with? Has the organization performed boat reconnoissance in local waters?*—The commanding officer is thoroughly familiar with practical navigation, and the navigator somewhat familiar. No appropriation could be obtained from the State for instruments. The commanding officer has lectured to the officers on surveying, lead, log, and rudiments of navigation. No boats have been available heretofore, but a small steamer has been purchased, and the engineer corps of the battalion are repairing the machinery and refitting her.

Charts were on board and in use during the present cruise of the battalion in schooners.

(19) *Organization, equipment, and proficiency.*—As soon as the men are sufficiently drilled in signals there will be a signal squad of 1 officer and 8 men formed, equipped with the army kits.

(20) *Automobile torpedoes—are any of the officers or men familiar with?*—No. The instruction has been limited to the inspection and explanation of the Whitehead.

(21) *Recommendations.*—The board is informed by the commanding officer of the battalion that the present appropriation from the State is barely sufficient to maintain the organization in its present condition, and he recommends an increased appropriation. The board recommends that each individual of the organization,

except the Engineer Corps, be supplied with the necessary ordnance drill books, and that the battalion be provided with a small professional library.

The following is a list of the books they have at present:

Seamanship (Luce)	3
Radford's Hand-Book on Gunnery	6
Gunnery Drill Book (Bureau of Ordnance)	6
Bowditch	6
Henderson's Practical Navigator	8
Naval Militiaman's Hand-Book (Stayton)	8
How to Shoot a Pistol	12
Boat Reconnoissance Work (roll of blanks on same for data)	12
Wall-Scaling, Street and Single Stick Drill	12
Reprints Instructions Infantry and Artillery	50
Navy Regulations	3
Articles of War	8

The board can not urge too strongly the necessity of making provision for reimbursing the men for actual necessary expenses incurred, and for the time lost from their business when ordered out for duty by the commanding officer. The above was the principal reason for the comparatively small proportion of the battalion which was present during the week at Ship Island, as they could not afford to get some one to take their business places while absent.

(22) *Remarks.*—The board takes pleasure in bringing to your attention the marked professional ability of the commanding and executive officers of the battalion. All the officers show great zeal and interest in the performance of their duties, and seem to be, in general, well fitted for their positions.

Respectfully,

H. H. HUTCHINS, *Lieutenant, U. S. N.*
J. T. NEWTON, *Lieutenant, U. S. N.*
R. H. OSBORN, *Ensign, U. S. N.*

The COMMANDING OFFICER,
U. S. S. Montgomery.

U. S. S. MONTGOMERY,
Navy-Yard, New York, August 30, 1897.

SIR: Transmitted herewith is the report of the board of officers appointed by me for the purpose of reporting upon the "condition and efficiency for service of the Naval Militia of the State of Louisiana."

The bearing of the militia officers in the performance of their duty and the excellent discipline of the men under their command were the subjects of favorable comment by all who saw them, while the desire which they display to acquire knowledge under adverse circumstances and conditions amounting almost to hardship is worthy of commendation. It is to be hoped that more liberal appropriations and better facilities for perfecting themselves in the practical details of the profession will in the near future be given this organization, which is so full of promise.

Respectfully,

G. A. CONVERSE,
Commander, U. S. N., Commanding.

The COMMANDER-IN-CHIEF,
U. S. Naval Force on North Atlantic Station.

NAVAL MILITIA OF CALIFORNIA.

U. S. S. BENNINGTON,
Navy-Yard, Mare Island, Cal., July 12, 1897.

SIR: In accordance with your order of June 26, 1897, "to report to the commanding officer of the U. S. S. *Camanche*, at San Francisco, Cal., and be present on board that vessel during the drills of the naval battalions, National Guard of California, beginning the 3d proximo," I have the honor to make the following report, using the Department's memorandum as a base:

(1) *Official designation.*—"Naval Militia of the National Guard of California."

(2) *Strength.*—(*a*) Authorized: Six divisions and an engineer's division.

(*b*) Organized: Five divisions sworn in. Sixth Division and engineer's division are organized and will be sworn in this month. Each division composed of not more than 100 petty officers and seamen and 4 commissioned officers, nor less than

50 petty officers and seamen and 1 commissioned officer. In San Francisco are stationed the First and Second divisions and staff of battalion, consisting of 106 enlisted men and 12 officers. In addition to this is the engineer's division complete (officers and men), organized but not yet sworn in.

(*c*) The per cent attending instruction on board during the week varied from 90 per cent at beginning of week to the last of the week, when business demands reduced the percentage to about 70 per cent. In addition to this was the complete engineer's division, who, not having been sworn in, came as volunteers for the cruise.

(3) *Number, organization, and stations of battalions and divisions.*—One battalion, with headquarters at San Francisco, situated as follows: First and Second divisions and engineer's division at San Francisco; Third Division at San Diego; Fourth Division at Santa Cruz; Fifth Division at Eureka; Sixth Division to be located at Santa Barbara.

(4) *Appointment of officers.*—All divisional officers are elected by the petty officers and seamen of their respective divisions, examined by the examining board, and commissioned by the governor. The captain (commanding battalion), executive officer, navigator, and ordnance officer are elected by the commissioned officers of the organization. The staff (paymaster, aid, or adjutant, and signal officer) are commissioned on the recommendation of the captain. The medical officers are detailed to service with the Naval Militia from the sanitary corps of the National Guard of California on the recommendation of the captain of the Militia, approved by the surgeon-general of the State. No ex-naval officers are serving with the San Francisco divisions.

(5) *State appropriations.*—(*a*) From the State $100 per month for armory rental and other legitimate expenses to each division; (*b*) an annual allowance of $250 to each division for "military purposes;" also, $150 per year for repair of uniforms; (*c*) uniforms are furnished by the State.

Armament.—Of San Francisco divisions: 168 Lee magazine rifles; 70 Colt .38-caliber revolvers, navy pattern; 30 cutlasses; 4 1-pounder Hotchkiss R. F. G., with 4 cage mounts on the *Camanche;* 2 boat mounts and four field carriages with necessary equipment; 1 Accles machine gun with field carriage and necessary equipment; 2 15-inch smooth-bore B. L. in turret of *Camanche* (loaned); 1 torpedo outfit complete, spar torpedo (loaned). Each man is equipped with canteen, leggings, haversack, poncho, web belt, bayonet. All revolvers are furnished with belt and holster.

The character of the above armament is modern and efficient with the exception of the 15-inch S. B., which while kept in good condition are of little practical use even for drill purposes.

The remainder of the above-mentioned armament is in excellent condition.

(7) *Ammunition.*—One-pounder: 110 rounds common shell, 843 rounds case shot, 200 saluting charges. Accles machine gun: 11,984 rounds .30 caliber, smokeless powder. .38 caliber revolver: 5,000 rounds. .45 caliber rifle: 20,000 rounds.

(8) *Equipment.*—Boats: The battalion outfit consists of 1 steam cutter, 1 barge and outfit, 3 whale boats and outfit, 1 sailing launch and outfit, 3 cutters and outfit, 2 gigs and outfit, 1 surfboat and outfit, 1 dinghy and outfit.

The San Francisco divisions have the following of the above boats: 1 steam cutter, 1 barge, 2 whaleboats, 1 cutter, 1 gig, and 1 dinghy. These boats, except steam cutter, were all selected from the condemned boats at Mare Island Navy-Yard, and the outfits are very meager in quantity and of poor quality, being, like the boats, mostly selected from condemned articles. None of the boats are supplied with boat boxes or their contents. These boats, while fit for ordinary boat drills, etc., are unfit and dangerous for hard and continuous service, such as will be required of them for the boat reconnoissances contemplated by the Department. The boats are well taken care of, but the boiler of the steam cutter will soon need extensive repairs.

Signal outfit: None has been furnished by the Department. There is on the *Camanche* (personal property, but in use), 1 set of international code of signals, with book; 1 general recall flag, 7 boat-answering pennants and 9 boat recalls, 10 American ensigns, 1 meal pennant, drill cards for wigwag, and several wigwag flags.

Navigation outfit: Necessary books on navigation, 2 boat compasses, 1 "Field's Reversible Pelorus and Course Corrector" (loaned), lead lines, charts of San Francisco Harbor (with necessary articles, such as parallel rulers, dividers, etc.), necessary running lights, etc. All in good condition.

Mess outfit: Mess tables, benches, mess gear, galley outfit, etc., kept clean and in fair condition. The ward room and rooms furnished with necessary chairs, tables, mess outfit, toilet sets, mattresses, etc.

The *Camanche* is very poorly fitted out in equipment, as (with exception of 1 anchor and chain) she was stripped of everything of possible use to the service before being turned over to the Naval Militia.

On shore the San Francisco divisions have an armory well fitted out with lockers for men and officers (one room for each division and separate ones for officers), an office, and a large drill or lecture room. In addition to this, they have a good-sized boat house and shed on the water front for hoisting and stowing their boats when not in use.

Uniforms.—All enlisted men of the San Francisco divisions are supplied with one suit of blue uniform, United States Navy pattern, blue flat cap, one white working suit, together with neckerchiefs and lanyards, all of regulation pattern and in good condition. All petty officers wear their proper uniforms and badges as provided for by United States Navy Regulations. All the commissioned officers wear uniforms of dark blue cloth of a pattern and material similar to the service uniform of the United States Navy, with proper rank devices, and also proper stripes of gold on the sleeve (provided at their own expense).

(10) *Camp equipage.*—No tents or camp equipage in possession of the organization, except that each division is furnished with a mess outfit of tin pot, plate, knife, fork, and spoon for each man, and each division has its own mess pots and kettles. Tents are expected to be supplied in the near future.

(11) *Property accountability.*—The commanding officer of each division is personally accountable for all property issued to his division and is required by the State to furnish bond in the sum of $2,000 each. All State or United States property is kept in the armory on shore or on board the U. S. S. *Camanche*, and it is strictly prohibited to move any property therefrom without the permission of the divisional commanding officer. These rules are strictly enforced and a general supervision of the property is exercised by the commanding officer of the organization, assisted by the ordnance officer.

Quarterly reports of the property are forwarded to State general headquarters, and an annual inspection thereof is made by the inspector-general's department.

(12) *Subsistence.*—Subsistence is provided by the State encampment appropriation. It is purchased by the paymaster of the organization acting as commissary. After being served out on board it is prepared by the mess cooks, taken to the galley, and cooked by the ship's cook as in the regular service.

(13) *Drills* (*see also Remarks*).—The drills are identical in scope and character on board ship and ashore with those of the regular service. Service text-books are used. During the week's instruction the following drills were held:

General quarters, with and without target practice, great-gun drill (15-inch S. B.), working turret, etc., and with the secondary battery (four 1-pounders mounted on the superstructure and 1 Accles machine gun), small-arm target practice, fire quarters, man overboard, infantry, artillery, bayonet, sword, boats under oars, squadron maneuvers with boats (signals made from ship), signals, and first aid to the wounded.

(14) *Performance of duty.*—During the week's cruise was excellent. The watch, quarter, and station bill was made up on the quadrantal system (obtained from the U. S. S. *Oregon*). The daily man-of-war routine was carried out strictly night and day. Orders given were executed with a snap and good judgment and a lack of confusion commendable to the organization.

(15) *Personnel.*—The crew of the *Camanche* was made up of the First and Second divisions, Naval Militia, National Guard of California, and the engineer's division (not yet sworn in). The enlisted men of the First and Second divisions were taken from the following callings:

Ex men-of-warsmen	15	Carpenters	6
Sailors	17	Electricians	8
Mail service	2	Photographers	2
Tailors	2	Butchers	2
Painters	2	Clerks	17
Teamsters	5	Railroad conductor	1
Laborers	4	Mason	1
Boiler makers	14		
Machinists	12	Total	106

The battalion officers and officers of the First and Second divisions on board were as follows:

Captain of *Camanche* and battalion (S. H. Turner) all of his life up to eight years ago at sea, mostly as a commanding officer in the merchant service; now in marine insurance business; also holds State office. Is a thorough and practical sailor and navigator and a good disciplinarian.

The navigator is an assistant superintendent in construction department at the Union Iron Works. He is thoroughly familiar with the modern United States ships built there and their armament. Early part of life spent at sea. Is an expert and enthusiastic navigator; knowledge gained by practical experience and instruction in school of navigation.

The remainder have had no experience at sea, but are mostly yachtsmen around San Francisco. They are from the following callings in life:

Doctors	2	Phot apher	1
Dentist	1	Law	1
City editor, San Francisco Call	1	[illegible]	4

The professional knowledge of the men and officers for their respective duties is good.

The engineer's division (organized, but not yet sworn in) is excellent throughout. The officers and men are taken almost entirely from the Union Iron Works, San Francisco.

Discipline.—The discipline was very good. There was none of the familiarity between officers and men, nor between the commanding officer and officers, usually found in a volunteer organization. The commanding officer messed, except on special occasions, in the cabin with his staff (senior surgeon, paymaster, and aids), the rest of the officers messing in the wardroom. The crew were divided into messes as on board a man-of-war, chief petty officers having their own mess. The crew was well organized, orderly, careful of salutes, attentive to duty, and respectful in their bearing toward their officers. The regulations as regards morning and evening colors, ship's routine, routine reports to commanding officer, standing lights, night watches for officers and men, etc., were carefully observed. Not a single case of intoxication occurred during the week, nor was there an occasion for a report of any kind. Men executed orders on a jump, were familiar with the bugle calls, and showed an interest and zeal in their work for which the commanding officer and officers deserve great credit.

(17) *Target practice.*—Small-arm target practice is held weekly during the year by squads of the division, also subcaliber practice with the 1-pounders.

During the week's instruction just passed on board the *Camanche* one day was spent in target practice, under way with rifles, at from 100 to 400 yards, with the Accles machine gun and 1-pounder subcaliber at same ranges, and with the Hotchkiss 1-pounders at from 500 to 1,500 yards, using common shell at the longer ranges and case shot at the shorter ranges. The guns were well and efficiently manned, worked smoothly, and the target practice was good.

(18) *Charts.*—Only a small percentage of the officers are familiar with charts, but it is the intention to give them this year a thorough course of instruction in navigation by the navigator.

Boat reconnoissance in San Francisco Harbor has been performed in a limited degree, but no results tabulated. It will be taken up this year as recommended by the Department.

(19) The signal service is in an unorganized condition, a signal officer having just been allowed the organization by the last State legislature. This officer, the quartermasters, and most of the coxswains are skillful at the wigwag, and the signal officer himself is experienced in the Very and Ardois night signals. For signal outfit, see answer (*b*) to question 8.

(20) *Automobile torpedoes.*—None of the officers or men are familiar with them. The navigator has a slight knowledge gained by study and personal observation on the U. S. S. *Olympia.*

(21) *Recommendation.*—(*a*) That a different type of ship be turned over to the organization, one fitted with spars, and a modern battery similar to the U. S. S. *Ranger* when repairs are finished. If it be necessary to lay a ship up in reserve on this station, that a ship of the above-mentioned type be chosen, and turned over to the divisions in San Francisco. From the experience with the *Camanche*, the ship will be kept in good condition and ready for active service with the exception of stores. It is the intention of the commanding officer to make frequent cruises (monthly if possible) in the future, and the above-mentioned type of ship would allow them to do outside work.

(*b*) That an officer be detailed to supervise the drills, instruction, and cruises of this organization—detailed especially for this purpose, or as additional to some present shore duty on this station.

(*c*) If the recommendation in paragraph (*a*) is not practicable, that the *Comanche* be properly fitted out for the organization.

(*d*) That at the next yearly inspection the San Francisco organization be given the benefit of an officer (or officers) having either the authority of an instructor or an inspector.

(22) *Remarks.*—The expenses of the *Camanche*—coal, etc.—were paid from a State appropriation of $5,000, which became available July 1. The battalion assembled at their armory in San Francisco at 4.30 p. m. July 3, in obedience to orders, and at 5 marched down to the landing and embarked on board the *Camanche.* Men were immediately given their billets, and at 8 p. m. the ship got under way and started for an anchorage off California City, reaching there after midnight. The *Camanche* was manned and officered entirely and exclusively by the Naval Militia, the first and second divisions composing the deck force, and the engineers' division taking complete charge of the engineer's department. The national holiday (July 4) was observed by dressing ship and firing a national salute at noon.

On the evening of July 5 the *Camanche* shifted her anchorage to one off Goat Island, near Oakland.

During the week the entire days were spent in the different drills mentioned under 15. The drill at general quarters was particularly good, the time between fires averaging less than five minutes for the 15-inch S. B. turret guns, and the turret was revolved one complete revolution in one minute twenty-one seconds, everything in connection with the turret and 15-inch guns being kept in good condition by members of the crew.

The boat drills were fair the first day, but excellent toward the end of the week, four boats taking part. I append, marked "A," the card used for their boat drills. Having no signal outfit this card was gotten up by the signal officer, to use with a private set of international code flags.

No accident occurred during the week, with the exception of a man falling overboard. He was promptly picked up without noise or confusion. At man-overboard drill the buoy thrown overboard was picked up by the lifeboat in one minute thirty-five seconds.

Saturday morning, July 9, the *Camanche* was again gotten under way. The commanding officer swung ship for deviation of the compass, using a "Fields's reversible pelorus and course corrector" (this was done for the instruction of the officers), and then proceeded to her moorings off San Francisco, where most of her stores and equipment were sent ashore to the armory, the militia returning on board, and at 12.30 p. m. they again got under way and proceeded to Mare Island, being secured to a buoy there at 7.30 p. m., the crew returning to San Francisco the next morning. During the trip the *Camanche* was run under forced draft at times to test the blowers, the temperature in the fire rooms at times reaching 134°.

In conclusion I would state that the officers and men of the San Francisco divisions deserve great credit for the week's work; for taking complete charge of a ship in every detail, deck force and engineer force: not only having steam up constantly during that time and under way a good deal of the time, but carrying on a man-of-war's routine night and day, with the unusual amount of drills crowded into one week and not an accident to mar the good record made.

Very respectfully,

C. D. STEARNS,
Ensign, United States Navy.

COMMANDING OFFICER, *U. S. S. Bennington.*

Respectfully forwarded to the Secretary of the Navy.

H. S. NICHOLS,
Commander, Commanding.

U. S. S. MONADNOCK, SECOND RATE,
San Francisco, Cal., July 28, 1897.

SIR: In obedience to your order of July 9, 1897, a copy of which is appended, marked A, transmitting Department's letter 68239, of June 11, 1897, we have the honor to submit the following report upon the condition and efficiency for service of the Fifth Division, Naval Militia, National Guard of California, stationed at Eureka, Cal.

The board has been governed in its action by the above-mentioned letter of the Department, and by the "Memorandum for boards appointed to report upon the condition and efficiency for service of the Naval Militia."

(1) The official designation of the State Naval Militia is the Naval Militia of the National Guard of California.

(2) (*a*) One captain commanding and the following staff: 1 lieutenant, navigator; 1 lieutenant, ordnance officer; 1 lieutenant, aid; 1 ensign, signal officer; 1 chief engineer, lieutenant-commander; 1 paymaster, lieutenant; 1 surgeon, lieutenant; and six divisions of 5 commissioned officers, including an assistant surgeon, and not less than 50 nor more than 100 petty officers and men each.

(*b*) Six divisions.—First and second at San Francisco, headquarters, composed of 7 commissioned officers and 106 petty officers and seamen, and an engineer division of 4 commissioned officers and 21 petty officers and men. The third division at San Diego, of 4 commissioned officers and 72 petty officers and seamen; the fourth division at Santa Cruz, of 4 commissioned officers and 58 petty officers and seamen; the fifth division at Eureka, of 4 commissioned officers and 69 petty officers and seamen; the sixth division at Santa Barbara, of 4 commissioned officers and about 60 petty officers and men. Late returns have not been had from this division. The assistant surgeons have not yet been elected.

(*c*) Sixty-five per cent of the fifth division at Eureka.

(3) Battalions and divisions are organized and stationed as given in (2). There is no brigade organization.

(4) Officers are all elected, except captains and personal staff; no ex-naval officers serving.

(5) The State has appropriated money as follows: To headquarters of Naval Militia, $6 per month per division for clerical expenses, stationery, printing, and postage; to each division, $100 per month for "armory rent, care of arms, and proper incidental expenses of the division," also an annual allowance of $250 for proper incidental expenses.

For the year 1897 the State allowed $375 per division for expenses of seven days encampment or drill.

Uniforms are furnished by the State about once in four years.

(6) The Fifth Division is armed with Springfield rifles, models of 1873 and 1884, with bayonets, and rifle belts with leather cartridge boxes. The arms and belts are in good condition.

(7) The Fifth Division has on hand 3,300 rounds .45-caliber ammunition.

(8) The Fifth Division has one 12-oared cutter, with lug sails, and one 6-oared whaleboat, with sliding gunter sails, all in good condition. These boats have no boat boxes. There is no signal outfit.

(9) The officers have the regulation service dress for Naval Militia officers, and the men have the white working clothes of naval pattern with knife, lanyards, neckerchief, and white canvas hats. The uniforms are all in good condition.

(10) The division has 12 wall tents, regulation size, in fair condition, and a mess outfit of cups, knives and forks, plates, and boilers for 100 men; these articles are in poor condition.

(11) Quarterly returns are required to be made to the adjutant-general of the State of all public property on hand; these regulations are strictly enforced.

(12) Subsistence while in camp was furnished, prepared, and served by contract; the meals for officers and men were served in rooms near the camp.

(13) The fifth division was encamped seven days on the peninsula opposite Eureka. They came on board the *Monadnock* in their own boats twice a day for six days, and were drilled as follows:

Setting up exercises; boat drill under oars; boat drill under oars, armed with 1-pounder Hotchkiss; signals (wigwag); as powder division in passing ammunition for secondary battery and 4-inch guns; as a gun division, manning secondary battery and 4-inch guns; officers instructed in charts and laying down courses; petty officers instructed in compasses and steering and in heaving the lead. In addition, the division had the opportunity of seeing the *Monadnock* drill at general quarters, at singlesticks and revolvers, and at arming boats for distant service. The gun drill on the last two days was carried on by militia officers.

(*b*) On shore the division had guard mount, sentry duty, and extended order drill. On the last day of the encampment the *Monadnock's* battalion was landed and drilled with the Naval Militia at extended order drill.

(14) In the performance of duty the officers and men showed alacrity and a desire to profit by the instruction given.

(15) (*a*) The majority of the men are young clerks and laborers, active and intelligent, average, 28 years. (*b*) Neither officers nor men have any professional knowledge. (*c*) None have served in the Navy. (*d*) None belong to the seafaring class; one man has been mate on a sailing vessel.

(16) The discipline observed was good; no offenses were reported by the officers.

(17) Rifle target practice is required by State regulations four times a year at 200, 300, and 500 yards. This division has had only individual target practice by a few men. As it was impracticable to take the division to sea, there was no target practice with the secondary battery.

(18) The officers are not familiar with charts. No boat reconnoisance work has been performed.

(19) There is no organization of signalmen, no signal outfit, and no men are proficient in signals.

(20) None of the officers and men are familiar with automobile torpedoes.

(21) We beg leave to renew our recommendation of last year, that this division be furnished with a Hotchkiss 1-pounder, with field carriage, boat mount, and ammunition.

(22) The officers and men are greatly encouraged by their six days' work on board the *Monadnock*. The commanding officer reports two new applications for enlistment. The gun drill of the secondary battery carried on by the Naval Militia officers during the last two days was very creditable. The efficiency in the various ratings is poor, from lack of experience. A decided improvement over last year was noted in the coxswains. The officers and men of this division are active, intelligent, and zealous, and deserve every encouragement in their work.

Very respectfully,

JESSE M. ROPER, *Lieutenant, U. S. N.*
J. P. PARKER, *Lieutenant, U. S. N.*
A. M. BEECHER, *Lieutenant, U. S. N.*

The COMMANDING OFFICER.

U. S. S. MONADNOCK, SECOND RATE,
San Francisco, Cal., July 30, 1897.

SIR: In obedience to Department's letter dated June 11, 1897, directing the drills of the Naval Militia at Eureka to take place on board of this vessel, I have to report as follows:

The vessel arrived off Humboldt Bar on the morning of July 13, and on obtaining a pilot crossed the bar and anchored in the bay below Eureka.

Shortly after anchoring the officers of the Naval Militia came on board. Lieut. C. V. Otto was in command. I read to them extracts from the "Memorandum for boards appointed to report upon the condition and efficiency for service of the Naval Militia," so that they would have an idea as to the object of their inspection. It was there agreed upon that they should form a camp at Somoa, nearly opposite the ship, and should remain in camp for seven days.

I was anxious to have the time extended to ten days, but they assured me that this was impracticable, as the men could not remain away from their work longer than one week, and that Sunday must be included in that time. This gave but six working days.

They reported on board each morning at 9 a. m. and each afternoon at 1.30 p. m.

The officers and men of this division seemed to be above the average in intelligence, and seemingly took great interest in their work. Being mainly composed of clerks, they were not used to manual labor and their hands became badly blistered, which interfered somewhat with their work.

Instructions were first given by the members of the board to the commissioned officers of the Militia, while the petty officers of the ship were instructing the men in elementary work. After this, the Militia officers were permitted to instruct and drill their own men, under the supervision of members of the board.

In my opinion the number of days devoted to drill was not sufficient, as neither officers nor men have any professional knowledge and do not belong to the seafaring class. However, as short as the time was they showed decided improvement in their work, and I think this division deserves every encouragement that it is possible for the Department to give them.

I inclose herewith report of the board appointed in obedience to the Department's order, and also copies of all correspondence with the Adjutant-General.

Very respectfully,

W. H. WHITING,
Captain, U. S. Navy, Commanding.

The ASSISTANT SECRETARY OF THE NAVY,
Washington, D. C.

U. S. S. BENNINGTON, THIRD RATE,
At Sea, Lat. 25.46 N., Long. 145.33 W., August 20, 1897.

SIR: In obedience to orders of the commanding officer of June 30 and August 4, 1897, we have the honor to make the following report on the condition and efficiency for service of the naval-militia organization drilled on board this vessel:

At 10 a. m. August 4 about 40 men of the Third Division of the Naval Militia of the National Guard of California, under command of Lieut. L. A. Chandler, came on board the *Bennington* off San Diego, Cal. The *Bennington* immediately got under way and proceeded down the harbor and came to anchor off La Playa, where a portion of the Naval Militia were already arranging their camp (Camp Nichols). The men of the Naval Militia were landed and went into camp. That afternoon they came on board and were divided into two gun divisions. The forward one manned the waist VI-inch B. L. R. and the two Gatling guns, and the after one the VI-inch B. L. R. on the poop and the two 6-pounder R. F. guns. The men were given the same stations and duties as the *Bennington's* men belonging to these divisions at general quarters, fire quarters, collision drill, and in armed boats and abandon ship.

The men took their stations promptly under their own officers. The men of the after-gun division, under Lieut. T. M. Shaw, were especially well up in their stations and duties at great guns, and upon being shown where to obtain the necessary articles went through the great-gun drill in a very satisfactory manner. The forward division did not do nearly so well. Many of the men knew the titles and duties of their gun numbers and others did not.

The drills and instruction were carried on from day to day, as will be enumerated later.

(1) *Official designations of State Naval Militia.*—Naval Battalion of National Guard.

(2) Strength of the Third Division, Naval Battalion, National Guard of California: (*a*) 100 men, 4 line officers, 1 assistant surgeon; (*b*) 75 men, 4 line officers, 1 assistant surgeon; (*c*) 50 per cent.

(3) *Number, organization, and stations of brigades, battalions, and divisions.*—One battalion; headquarters at San Francisco; first and second divisions and engineer's division stationed at San Francisco; third division at San Diego; fourth division at Santa Cruz; fifth division at Eureka; and the sixth to be at Santa Barbara.

(4) *How are the officers appointed or selected?—Number of ex-naval officers serving.*—All divisional officers are elected by the petty officers and seamen of their respective divisions for a term of two years. They are examined by the examining board and commissioned by the governor. The captain, executive, navigating, and ordnance officers are elected by the commissioned officers. The paymaster, aids, and signal officers are commissioned on the recommendation of the captain. Medical officers are detailed to service with the Naval Militia from the sanitary corps of the National Guard of California on the recommendation of the captain of the Naval Militia, approved by the surgeon-general of the State. No ex-naval officers are serving with the militia.

(5) *State appropriations.*—Three hundred dollars per quarter, or $1,200 per year, for rent of armory and other legitimate expenses, and $250 per annum for "military purposes" when there are 50 or more men in the division. If there are less than 50 men the allowance for "military purposes" is reduced by $5 for each member less than 50.

(6) *Armament, etc.*—Sixty-nine Lee magazine rifles, caliber .45; 69 bayonets; 70 bayonet scabbards; 276 rifle magazines; 70 waist belts; 21 Colt's revolvers, caliber .38; 17 revolver belts; 26 revolver cartridge boxes; 12 revolver packs, rings, and plugs; 19 revolver holsters; 12 cutlasses; 12 cutlass belts; 12 cutlass frogs; 12 cutlass scabbards; 69 gun slings; 94 canteen straps; 94 canteens; 96 haversack straps; 96 haversacks; 143 poncho straps; 84 rubber ponchos; 1 3-inch B. L. R. on field carriage; 1 set reloading tools for .45 caliber ammunition. The above are generally in an excellent condition and show that they are well taken care of.

(7) *Ammunition, character and amount on hand.*—

Ball cartridges, caliber .38	367
Ball cartridges, caliber .45	2,680
S. B. shell, XV-inch	1
Common shell, 60 pounder M. L. R	1
Canister	1

And a small quantity of powder, lead, primers, etc.

(8) *Equipment.*—One sailing launch and one 6-oared square-sterned gig; each boat is provided with spars and sails, oars and boat hooks, but no anchor or chains; oars 33, boat hooks 3.

(9) *Uniforms, character and condition of.*—The uniforms conform to the naval pattern. The blue uniforms were received in 1891 and many are in poor condition. This division expects to receive a new blue uniform next fall.

(10) *Camp equipage, tents, mess outfits.*—None belonging to this division. A part of the camp equipage, tents, and mess outfits used in this encampment this time was borrowed and a part was rented.

(11) *Property accountability.*—The lieutenant commanding division is responsible for all property issued to his division and is under bonds to the amount of $2,000. The regulations are strictly enforced.

(12) *Subsistence, how furnished.*—Subsistence provided under State encampment appropriations. Three hundred and seventy-five dollars was allowed by the State for this encampment to cover subsistence and all other expenses of the camp.

(13) *Character and scope of drills, etc.*—Drills were carried on as follows:

Wednesday, August 4: 2 to 4 p. m., stations and exercise at the main and secondary batteries; between 4 and 9 p. m., signal drill at various times between ship and camp with wigwag flags during daylight and Ardois system and wigwag with lanterns after dark.

Thursday, August 5: 10 to 11 a. m., general quarters, including the usual drill, boarders, riflemen, firemen, pump men, etc., being called away at various times; fire in vicinity of each division; guns on both sides manned; men instructed in the use of tourniquets; fire quarters. Each exercise was repeated a number of times. 2 to 4 p. m., boats called away, armed, and equipped for distant service; boats called away for exercise; exercised under oars by signals from the *Bennington* (a man from the *Bennington* was sent in each boat to read signals, as the Naval Militia could not read the Navy signal flags). Each officer was supplied with a tactical signal book for these drills, and upon being told the signal number looked it up himself. After exercising about an hour under oars by signal, the boats exercised singly under sail. For armed boats the Naval Militia manned two cutters, but for exercise under oars and sail they used at each drill four boats. Between 4.30 and 9 p. m., signal drill; wigwag signals; flags by day, search light and lanterns after dark.

Friday, August 6: 10 a. m. to 12 m., instruction and exercise as powder division; cast loose and provided; ammunition was whipped up to upper decks; instructions by the medical officer of the ship in aid to injured, etc. 2 to 4 p. m., tactical boat drill under oars, by signal from ship. 4 to 9 p. m., signal drill, wigwag.

Saturday, August 7: 9 to 11 a. m., boats called away for landing or cutting out; party landed and exercised in "extended order."

Monday, August 9: 9 to 11 a. m., *Bennington's* battalion landed and joined by the Naval Militia and exercised at battle formation, the marines of the *Bennington* outlining the enemy; riot drill. 2 to 4.30 p. m., battery instruction, use of sights, etc., and general quarters.

(14) *Performance of duty, remarks on.*—The performance of duty was generally very good. Both officers and men showed much earnestness and desire to do well. It would be an immense help if they could have the assistance of some ex-naval officers to advise them and show them what to do and how to do it. The lieutenant commanding, L. A. Chandler, and Lieut. (junior grade) T. M. Shaw, are men with considerable force, and their influence on the men is apparent, but they are handicapped by lack of experience. Their great gun drill, artillery drill at their armory with the 3-inch B. L. R., and the manual with small arms were very good. Their infantry drill was only fair. Lieutenant Chandler said that many of their best men could not be present during the encampment.

(15) *Personnel, etc.*—(*a*) The following is a list of the officers and their occupations, and a list of the occupations of the men:

Lieut. Leonard A. Chandler, boat-house proprietor; Lieut. (junior grade) Thomas M. Shaw, civil engineer; Ensign James McNair, cement contractor; Ensign Edward Fletcher, commission merchant.

Occupations of the petty officers and men of the Third Division:

Ranchers	3	Printers	2
Clerks	16	Plumber	1
Barber	1	Butchers	2
Abstractor	1	Teamsters	2
Electrician	1	Coachman	1
Painters	6	Messenger	1
Harness maker	1	Liverymen	2
Laborers	8	Horticulturist	1
Machinists	2	Bottler	1
Upsholsterer	1	Brewer	1
Students	6	Blacksmiths	4
Carpenters	2	Horseshoers	3
Foundryman	1	Merchant	1
Contractor	1	Sailor	1
Dairyman	1		
Draftsman	1	Total	75

(*b*) Fair knowledge of the compass, lead line, simple knots and hitches, and how to handle boats under sail or oars.

(*c*) Number that have served in the Navy, 1.

(*d*) Number belonging to the seafaring class, 10.

(16) *Discipline.*—Fair. Owing to the method of electing officers there is said to be a tendency on the part of some officers to sacrifice discipline through fear of becoming unpopular with their men and consequent failure of reelection; and again, although there is a system of fines and punishments by court-martial, there is said to be much difficulty in carrying them out.

(17) *Target practice.*—An Ingersoll target was used, both the ship and the target drifting. The range varied from 1,150 to 1,200 yards. Commissioned officers and first and second gun captains fired three shots each with either the 6-inch B. L. R. or the 6-pounders. The practice was very good and nearly all the shots would probably have struck a vessel of the *Bennington's* size if it had occupied the place of the target. Each division has target practice with small arms frequently.

(18) *Charts, etc.*—The officers were given instruction in use of charts by Lieutenant Mayo, U. S. N., the navigator of the *Bennington*. One officer, Lieutenant Shaw, showed some familiarity with charts; the others knew practically nothing about them. This division has not performed any boat reconnoissance work.

(19) *Signalmen.*—Two men of this division have been detailed as signalmen. They read and made wigwag signals with flags and lanterns efficiently. They also read the Ardois signals promptly, answering with lanterns. Equipment, 11 wigwag flags made by members of the division.

(20) *Automobile torpedoes, etc.*—No.

(21) *Recommendations.*—We make the following recommendations:

That this division be loaned two cutters with oars, sails, anchors and chains, and compasses, which would enable them to carry on boat drills and exercises much better and more satisfactorily than with the heavy sailing launch and the gig which they now have.

That, if possible, the arrangements be made whereby the Naval Militia may be instructed in harbor defense by torpedoes, mines, and improvised batteries by the United States Army engineers, or whoever is in charge of harbor defenses in their vicinity, so that the knowledge thus gained may be applied elsewhere where the defense is not undertaken by the Army.

That this division be loaned two modern fieldpieces, preferably 1-pounders, with boat mounts and ammunition.

The 3-inch B. L. R. they now have is in fair condition, but they have never had any ammunition for it, except powder which they bought for saluting purposes.

(22) *Remarks.*—The members of this board inspected the Naval Militia camp and armory at various times. The camp was well laid out, but, as previously stated, all the camp equipage was either hired or borrowed for the occasion. The armory was originally built for a German turner society. It is well adapted for armory purposes. All the arms and accouterments showed that excellent care had been taken of them. In cases of emergency the men are called by signal with a steam whistle. On one such occasion Lieutenant Chandler said they had about 60 men under arms ready for duty at the armory within two hours after the signal was made. Lieutenant Chandler was furnished a memorandum of the probable field of the Naval Militia in time of war, as contained in the "Memorandum for boards appointed to report on the condition and efficiency of the Naval Militia," and it was recommended that he carry on drills and instructions with especial reference to that memorandum.

Very respectfully,

C. P. EATON,
Lieutenant, U. S. Navy.
S. R. HURLBUT,
Ensign, U. S. Navy.
EMORY WINSHIP,
Assistant Engineer, U. S. N.

The SECRETARY OF THE NAVY,
Washington, D. C.

NAVAL MILITIA OF ILLINOIS.

U. S. S. MICHIGAN,
Mackinac Island, Mich., August 20, 1897.

SIR: In obedience to your order of the 1st ultimo, we beg leave to submit the following report on the exercises of the Naval Militia of Illinois. The information contained in this report will be grouped as directed in the "Memorandum for boards appointed to report upon the efficiency for service of the Naval Militia," issued by the Assistant Secretary of the Navy.

Official designation, Naval Militia of Illinois.

Strength authorized, 800 officers and men; organized, 605 officers and men; per cent attending instruction on board, 71.

The force comprises one brigade, composed of two battalions of four divisions each. The First Battalion is located at Chicago. The Second Battalion has headquarters at Moline, and consists of the first and second divisions at Moline, the third division at Quincy, and the fourth division at Alton.

The commanding and other officers of the divisions are elected by the men of their respective divisions. The commander, executive officer, navigating and ordnance officer, and aide to commander are elected by the battalion officers; staff officers are appointed by the battalion commanders. The captain is appointed by the governor, and is authorized to appoint the brigade staff. There are three ex-naval officers serving, all in the First Battalion.

The State appropriates $205,000 per annum, which is divided between the naval and military forces, according to their strength.

The brigade is provided with 575 Springfield rifles, caliber .50, with belts and bayonets in good condition furnished by the State. Under the cognizance of the Bureau of Ordnance there are two 1-pounder H. R. F. G. with field carriages and one caisson in fair condition, 157 Colts revolvers with holsters and belts, besides 400 canteens and haversacks with slings for same in good condition.

The amount of ammunition on hand is: Five hundred cartridges, caliber .50; 3,000 cartridges, caliber .38; 120 rounds for 1-pounder H. R. F. G.; 60 rounds of canister.

The equipment consists of three 30-foot cutters, two 28-foot cutters, one 26-foot cutter, one 24-foot cutter, two whaleboats, one gig, two dinghys, one 33-foot steam launch, one 30-foot steam launch, and one 31-foot sailing launch.

The three 30-foot cutters were built by contract according to specifications furnished by the Navy Department; the other boats were formerly a part of the equipment of the brick battleship *Illinois*. All the boats are in very good condition.

There are two signal kits, furnished by the Navy Department, in excellent condition, together with a number of wigwag flags.

The officers are supplied with service dress uniform similar to that of the regular service, with the exception of the black stripe on the outer seam of the trousers and the letter "I" embroidered across the shank of the anchor on the collar device and on the shield of the cap device. The petty officers and enlisted men are all supplied with blue uniforms of the navy pattern, and the majority of them have white working clothes and pea coats. The chief petty officers have not yet received their uniforms. All the uniforms are in good condition.

Camp equipage: (*a*) The supply of tents is ample, and is furnished by the State for the encampment only; (*b*) the mess outfits are complete.

The commanding officers are accountable for property, give bond, and make returns to the adjutant-general of the State. This regulation is strictly enforced.

The subsistence is furnished by the State in kind and prepared by the cooks of the various divisions.

The following routine of drills and exercises was carried out:

Tuesday, August 10.

9 to 11.30 a. m: First Division, First Battalion, stations and drill at *Michigan's* battery and subcaliber target firing. Second, Third, and Fourth Divisions, First Battalion, boats under oars.

1.30 to 3.30 p. m.: Second Division, First Battalion, stations and drill at *Michigan's* battery and subcaliber target firing. First, Third, and Fourth Divisions, First Battalion, signals, knotting and splicing on shore. Second Battalion, boats under oars.

7 p. m.: Dress parade on shore.

Wednesday, August 11.

9 to 11.30 a. m.: Third Division, First Battalion, stations and drill at *Michigan's* battery and subcaliber target firing. First, Second, and Fourth Divisions, First Battalion, boats under oars. Second Battalion, infantry, and knotting and splicing on shore.

1.30 to 3.30 p. m.: Fourth Division, First Battalion, stations and drill at *Michigan's* battery and subcaliber target firing; First, Second, and Third Divisions, First Battalion, infantry, signals, and knotting and splicing on shore; Second Battalion, boats under oars.

7 p. m.: Dress parade on shore.

Thursday, August 12.

9 to 11.30 a. m.: First Division, Second Battalion, stations and drill at *Michigan's* battery and subcaliber target firing; Second, Third, and Fourth Divisions, boats under oars; First Battalion, infantry, and knotting and splicing on shore.

1.30 to 3.30 p. m.: Second Division, Second Battalion, stations and drill at *Michigan's* battery and subcaliber target firing; First, Third, and Fourth Divisions, Second Battalion, boats under oars; First Battalion, infantry, signals, knotting and splicing on shore.

7 p. m.: Dress parade on shore.

Friday, August 13.

Target firing with *Michigan's* battery.

Saturday, August 14.

9 to 11.30 a. m.: Third Division, Second Battalion, stations and drill at *Michigan's* battery and subcaliber target firing. First, Second, and Fourth divisions, Second Battalion, boats under oars. First Battalion, infantry, signals, and knotting and splicing on shore.

1.30 to 3.30 p. m.: Fourth Division, Second Battalion, stations and drill at *Michigan's* battery and subcaliber target firing. First, Second, and Third divisions, Second Battalion, infantry, signals, and knotting and splicing on shore. First Battalion, boats under oars.

7 p. m.: Dress parade on shore.

There was no drill on Monday, August 9, on account of bad weather.

This brigade showed commendable activity, zeal, and desire to learn. Its work in boats in rough weather was especially praiseworthy, considering the inexperience of a large portion of the organization.

Personnel.—(*a*) The class of men composing the organization is shown as follows:

Machinists	31	Students	40
Carpenters	10	Laborers	25
Clerks	119	Draftsmen	9
Painters	8	Electricians	23
Engineers	21	Blacksmiths	7
Railroad men	12	Printers	10
Steam fitters	17	Woodworkers	11

Those not mentioned in the foregoing table are divided among the following occupations, viz: Physicians, organ builders, bricklayers, pattern makers, decorators, dentists, surgeons, scale makers, salesmen, bookkeepers, packers, carriage trimmers, butchers, reporters, policemen, architects, platers, boat builders, candy makers, telegraphers, cabinetmakers, molders, lawyers, and civil engineers.

(*b*) The organization has a fair amount of professional knowledge, considering the lack of opportunity to acquire it. The First Battalion, having three ex-naval officers in its organization, has an advantage over the Second Battalion for acquiring professional knowledge.

(*c*) Number that have served in the Navy, 8.

(*d*) Thirty-seven officers and men have been seafaring men.

Discipline, very good.

Each man fired from 5 to 10 shots at subcaliber practice with 6-pounder, and 60 officers and petty officers fired 2 shots each with 1-pounder and 6-pounder R. F. G., moving practice, at 1,500 yards. Both these practices were very good.

A few of the officers are familiar with charts.

As the coast line of the lake in the vicinity of Chicago is practically an unbroken line, there has been little opportunity for reconnoissance work by the First Battalion. The Second Battalion has performed some reconnoissance work in local waters, but are in want of charts of the upper Mississippi River.

There is no organized signal corps. Each division, however, has a number of competent signalmen with the exception of one just organized.

None are familiar with automobile torpedoes.

The coast line of Illinois is small and possesses no good harbors. The anchorage off the site of the encampment this year is an open roadstead, and, on account of the difficulties of obtaining provisions and mails, the liability to bad weather, rough seas, etc., is especially unsuitable for any vessel detailed for service with the Naval Militia. It is therefore recommended that a more suitable rendezvous be selected for future encampments, even if it be necessary to choose it in some other State.

In view of the fact that this brigade contains over 600 officers and men, it is recommended that at the next encampment only two divisions be detailed for service for one week at a time, if the *Michigan* is to be used. It is proper to state here that this vessel is not large enough, and has too few officers for the efficient drilling of such a large body of men in so short a time.

As this brigade has two 1-pounder H. R. F. G., it is recommended that accessory and spare parts, boxes, and bristle sponges be issued, in order that the guns may be properly preserved.

This brigade deserves special mention for the interest it shows in its work, as shown by the fact that the First Battalion turns over to the battalion fund the pay which its members receive during the encampment, and that the Second Battalion turns over about one-third of the pay received during encampment to its general fund.

We are of the opinion that the Naval Militia of Illinois will be a valuable naval auxiliary in time of war.

A copy of the Military and Naval Code of the State of Illinios is inclosed for your information, marked "A."

Very respectfully,

J. A. SHERMAN,
Lieutenant, U. S. N.
H. H. CALDWELL,
Ensign, U. S. N.
CHARLES F. PRESTON,
Ensign, U. S. N.

The COMMANDING OFFICER, *U. S. S. Michigan.*

Approved and forwarded.

RICHARD RUSH,
Lieutenant-Commander, U. S. N., Commanding.

NAVAL MILITIA OF MICHIGAN.

U. S. S. MICHIGAN,
Mackinac Island, Mich., September 3, 1897.

SIR: In obedience to your order of July 1, 1897, we have the honor to submit the following report of the drills and exercises of the Naval Militia of the State of Michigan.

The information contained in this report will be grouped as directed in the "Memorandum for boards appointed to report upon the efficiency for service of the Naval Militia" issued by the Assistant Secretary of the Navy.

(1) Official designation, Michigan State Naval Brigade.

(2) Strength (*a*) authorized, one brigade, consisting of not more than eight divisions, each division to contain not more than 80 nor less than 40 petty officers and enlisted men. (*b*) Organized, one battalion consisting of three divisions; total number of officers and men, 193. (*c*) Per cent attending instruction: First and Third divisions, 64; Second Division, 57.

(3) The organization consists of one battalion, composed of three divisions, with headquarters and First and Third divisions at Detroit; Second Division at Saginaw.

(4) Divisional officers are elected by the members of their respective divisions; the commanding officer of the battalion is elected by officers of the divisions composing battalion. All officers are subject to examination. Number of ex-naval officers serving, 1.

(5) State appropriation, $2,800 per year for the entire battalion.

(6) Armament, character, and condition of: The First and Third divisions are supplied with (under the cognizance of the Bureau of Ordnance), 2 steel 3-inch B. L. howitzers on field carriages, 1 brass 3-inch B. L. howitzer on field carriage, and 1 Gatling on field carriage, all in good condition. The First and Third divisions own 120 Hotchkiss rifles in good condition. The Second Division is supplied with 1 3-inch B. L. R. brass howitzer on field carriage, condition good; 60 Remington rifles, caliber .50, old and rusty; 60 cutlasses, and 14 Navy Colts' revolvers in good condition. All the above are loaned by the Navy Department.

(7) Ammunition.

First and Third divisions.

Cartridges:	
Caliber .38	1,000
Caliber .45	10,000
Blanks, caliber .45	1,000
3-inch B. L. R. sharpnel	10
3-inch B. L. R. shell	34
Primers	200
Boxer fuses	44
3-inch B. L. R. charges (service):	
Belonging to State	30
Belonging to First and Third divisions	14
3-inch B. L. R. charges (saluting) belonging to First and Third divisions	35

Second Division.

Cartridges, caliber .50	1,000
Cartridges, caliber .38	600
Blanks, caliber .50	500
3-inch B. L. R. shell	14
3-inch B. L. R. blank charges	6

(8) The First and Third divisions are equipped with three pulling cutters, one in good condition and two needing extensive repairs. These divisions have a supply of wigwag flags. The Second Division is provided with two 12-oared cutters, fully equipped, but in poor condition. This division is provided with numeral and wigwag flags.

(9) Officers are uniformed with service dress like that of the Navy, with the following difference: The letter "M" worked in silver on collar in rear of corps device, black braid stripes with loop on sleeves and black braid stripe on outer seam of trousers. The petty officers and men are supplied with blue and white uniforms of a regulation pattern, except with the addition of the letter "M" under the petty officers' badges. All uniforms are supplied at the expense of the organization.

(10) (*a*) There are no tents. (*b*) Mess outfits are provided.

(11) Commanding officers of divisions are under a $5,000 bond for the care of all property. Quarterly returns of all stores are required, and this regulation is rigidly enforced by the adjutant-general of Michigan.

(12) The allowance by the State is 75 cents per man per day. Subsistence is furnished by the paymaster acting as commissary, and is prepared by cooks enlisted for the purpose.

(13) The following routines of drills and exercises were carried out by the First and Third and Second divisions, respectively:

First and Third divisions.

July 11: Embark at Detroit. Stations for fire quarters and abandon ship.

July 12: Quarters for inspection, divisional drills, general quarters; (*a*) same with navigator's division at the battery; (*b*) same with powder division at the battery. Disembark and go into quarters at Fort Mackinac.

July 13: Subcaliber practice; boat drill; dress parade on shore at 5 p. m.

July 14: Moving-target practice with rapid-fire guns.

July 15: Rifle target firing on range on shore; target firing with 3-inch breech-loading rifles; dress parade on shore at 5 p. m.

July 16: Rifle target firing on range on shore; target firing with 3-inch breech-loading rifles.

July 17: Inspection by the Assistant Secretary of the Navy; quarters for inspection; general quarters.

July 17: Knotting and splicing; signals.

July 18: Quarters for inspection.

Second Division.

August 23: Instruction and drill at battery; fire quarters and abandon ship.

August 24: General quarters, stations, and drill in navigator's and powder divisions.

August 25: Subcaliber target firing; moving-target practice with rapid-fire guns.

August 26: Artillery drill on shore; inspection of barracks at Fort Mackinac.

August 27: Knotting and splicing; signals.

(14) The performance of duty was excellent.

(15) (*a*) Class of men composing the organization is shown as follows:

Merchants	23	Dentists	5
Lawyers	34	Street railway	1
Newspaper men	6	Capitalists	2
Manufacturers	15	Miner	1
Physicians	9	Architects	4
College professors	2	Stenographer	1
Mechanical engineer	1	Cashier	1
Electrical engineer	1	Students	8
Consulting engineers	3	Draftsmen	2
Civil engineers	2	Clerks and bookkeepers	58
Vessel owner	1	Apothecaries	2
Insurance	5	Lumber inspectors	2
Real estate	1	Traveling salesmen	3

(*b*) The First and Third divisions have had a longer experience than any Naval Militia on the lakes and have been messed and quartered on board the *Michigan* a number of times. Their professional knowledge is very good. The professional knowledge of the Second Division is very good, considering its limited opportunities to learn.

(*c*) The commanding officer of the battalion was graduated at the Naval Academy and served several years as ensign before resigning. The commanding officer of the Second Division was a cadet at the Naval Academy from 1886 to 1890. There are two enlisted men who served in the Navy.

(*d*) Number belonging to seafaring class, none.

(16) Discipline, excellent.

(17) The subcaliber practice was very good; each officer and man fired 10 shots. The moving practice with 1-pounder and 6-pounder R. F. G. was also very good; each officer and man fired 2 shots.

(18) Some of the officers are familiar with charts. The navigating officer is a licensed pilot for the lakes. The organization has performed no boat reconnoissance work in local waters.

(19) There is no organized signal corps, but there is a signal officer on the battalion staff. All the petty officers and a number of the men are efficient signalmen.

(20) Three officers have taken the course in automobile torpedoes at Newport.

(21) The board recommends that this battalion be given an opportunity to drill on board a modern man-of-war.

(22) The First and Third divisions made the cruise from Detroit to Mackinac and returned as the crew of the ship, a large part of the regular crew having been landed

at Fort Wayne to make room for them. Their performance of professional duties while on board was excellent, and in all the drills the battalion showed great zeal and intelligence.

A careful system of examination for promotion through the grades of the seamen branch is carried out in this State, and its results were highly apparent in the excellence of the petty officers.

The board is of the opinion that Mackinac Island is a very suitable place for encampments of Naval Militia.

Very respectfully,

J. A. SHEARMAN, *Lieutenant, U. S. N.*
H. H. CALDWELL, *Ensign, U. S. N.*
CHARLES F. PRESTON, *Ensign, U. S. N.*

The COMMANDING OFFICER, *U. S. S. Michigan.*

Approved and forwarded.

RICHARD RUSH,
Lieutenant-Commander, U. S. N., Commanding.

NAVAL MILITIA OF OHIO.

U. S. S. MICHIGAN,
Mackinac Island, August 3, 1897.

SIR: In obedience to your order of July 1, 1897, we have the honor to submit the following report on the exercises of the Naval Militia of the State of Ohio.

The information contained in this report will be grouped in accordance with the memorandum issued by the Department for the guidance of boards appointed to report on the condition and efficiency for service of the Naval Militia.

(1) The official designation of the Ohio State Naval Militia is the Naval Brigade, Ohio National Guard.

(2) (*a*) Two battalions, two divisions each (as far as could be ascertained from the naval militia officers; a copy of the State law will be forwarded as soon as it can be obtained), each division to consist of 1 lieutenant; 1 lieutenant, junior grade; 1 ensign, and not more than 88 nor less than 44 petty officers and enlisted men; each battalion to be commanded by a lieutentant-commander, with the following staff, viz, 1 lieutenant and executive officer; 1 lieutenant, navigator and ordnance officer; 1 ensign, assistant to navigator and ordnance officer; 1 paymaster, with relative rank of lieutenant; 1 surgeon, with relative rank of lieutenant; 1 assistant surgeon, with relative rank of ensign, and such petty officers as the commander in chief may direct. (*b*) One battalion in Toledo and two "unattached" divisions in Cleveland. (*c*) Eighty-seven and one-half per cent.

(3) Brigade not yet organized. One battalion at Toledo and two "unattached" divisions at Cleveland.

(4) All line officers are selected by election by their commands; all staff officers are appointed by chief of brigade and battalions. There are no ex-naval officers serving.

(5) The State, as yet, has made no appropriation.

(6) Two hundred and forty Lee magazine rifles, with belts and bayonets; two 3-inch B. L. R., with field carriages. The above are under the cognizance of Bureau of Ordnance, and are in good condition. In addition to these, the two "unattached" divisions of Cleveland have two 24-pounder Dahlgren brass howitzers. The second unattached division has loaned it by the "Gatling Gun Battery," of Cleveland, 2 Gatlings, 2 Gardners, 20 Colt's revolvers, and 20 Winchester rifles, all in good condition.

(7) Toledo. Two thousand rounds of .45-caliber cartridges for Lee rifle; fifty 3-inch B. L. H. shell, loaded, with fuses. Cleveland. The same.

(8) The entire command is equipped with blankets, blanket bags, haversacks, and canteens, in good condition. The Toledo battalion has an outfit of "wigwag" flags. The Cleveland divisions have no signal outfits. The Cleveland divisions have procured, at their own expense, a side-wheel steamer, 175 feet long, 52 feet beam over paddle boxes, formerly the revenue cutter *Andrew Johnson.* She carries two small cutters and a life boat, in good condition. Beside these the command has no boats.

(9) The uniform of the officers is the same as the service dress for the Navy, with the addition of the monogram of "Ohio" on each side of the collar. The officers have also white service uniforms and overcoats of the army pattern, converted, as near as possible, to conform with Navy Regulations. The petty officers and enlisted men have blue and white uniforms of the navy regulation pattern, in good condition.

(10) (*a*) Tents are supplied by the State for the encampment only. (*b*) The entire command is supplied with complete mess outfit.

(11) Inventory of all property is made annually. Each division commander is under bond to the State for all property intrusted to him. This is strictly enforced.

(12) The State furnishes subsistence, the same being purchased by the commissaries and prepared by the cooks enlisted for this purpose.

(13) The following routine of drills and instruction was carried out:

July 21.—Forenoon: Instruction of Cleveland Reserves on board steamer *Andrew Johnson*. Afternoon: Reception of the Assistant Secretary of the Navy.

July 22.—Forenoon: Inspection at Johnsons Island of the Ohio Naval Brigade by the Assistant Secretary of the Navy, the commanding officer of the *Michigan*, and board for inspection of Naval Militia. Afternoon: Inspection of steamer *Andrew Johnson*, with Cleveland Reserves on board, by the Assistant Secretary of the Navy, the commanding officer of the *Michigan*, and board for the inspection of Naval Militia. Instruction of Second Cleveland Division at rapid-fire guns.

July 23.—Forenoon: 8.30, First Toledo Division, instruction at rapid-fire guns; 9.15, First and Second Cleveland divisions, boats, wig-wag signals, and knotting and splicing on board *Andrew Johnson;* 11.30, retreat from drill. Afternoon: 1.30, First Cleveland Division, knotting and splicing, wig-wag signals, and great-gun drill with 24-pounder Dahlgren S. B. M. L. on board *Andrew Johnson;* Second Cleveland Division, general quarters and stations and duties of powder and navigator's divisions on board *Michigan;* Second Toledo Division, boats under oars; 3.30, retreat from drill.

July 24.—Forenoon: 8.30, Second Toledo Division, instruction of petty officers, fire quarters, and drill with rapid-fire guns; 9.15, First and Second Cleveland divisions, drill at 24-pounder Dahlgrens and Gatlings on board *Andrew Johnson*, using blank charges, boats under oars, and wig-wag signals; 11.30, retreat from drill. Afternoon: 1.30, First Cleveland Division drill at rapid-fire guns, instruction of petty officers at stations, and duties on board *Michigan;* Second Cleveland Division, boats under sail, and wig-wag signals; First Toledo Division, boats under oars.

July 25.—Forenoon: 10, read "Articles for the Government of the Navy" to the Ohio Naval Brigade under arms, on Johnson's Island, and inspection of the camp by the commanding officer of the *Michigan* and board for the inspection of Naval Militia.

July 26.—Forenoon: 8.30, First Cleveland Division, boats under oars; exercise First and Second Cleveland divisions on board *Andrew Johnson* at fire quarters, stations for "abandon ship" and general quarters; using blank charges; First Toledo Division, subcaliber practice on board *Michigan;* 11.30, retreat from drill. Afternoon: 1.30, First Cleveland Division, knotting and splicing and wig-wag signals on board *Andrew Johnson*, exercise boatswain's mates and buglers at the calls used on board a man-of-war; Second Cleveland Division, subcaliber practice on board *Michigan;* Second Toledo Division, boats under sail; 3.30, retreat from drill.

July 27.—Forenoon: 8.30, First and Second Toledo divisions, subcaliber practice. First and Second Cleveland divisions, boats under oars, knotting and splicing and wigwag signals on board *Andrew Johnson;* 11.30, retreat from drill. Afternoon: 1.30, First Cleveland Division, subcaliber practice on board *Michigan;* Second Cleveland Division, boats under oars; First Toledo Division, boats under oars; 3.30, retreat from drill.

July 28.—Exercise Naval Militia at target firing with *Michigan's* battery.

July 29.—Break camp and make preparations for leaving Johnson's Island for Cleveland and Toledo on board *Andrew Johnson.*

(14) The command has been but recently organized, and this is its first tour of duty with a naval vessel. Officers and men were entirely inexperienced in naval duties, but showed a fair amount of zeal and a desire to learn. The "unattached" divisions of Cleveland had the advantage of living on board the *Andrew Johnson* as a ship's company, and the good results of this experience were apparent.

(15) (*a*) Most of the men are of good physique and have a high-school or college education. (*b*) Their professional knowledge of naval matters, almost none. (*c*) Five. (*d*) Fifteen.

(16) Fair.

(17) Each man in the organization fired from 5 to 10 shots with subcaliber. The practice was very good, considering their short experience. In addition to this, 7 officers and 68 men fired 2 shots each from 1-pounder and 6-pounder R. F. G. at 1,500 yards, ship under way. The practice was good.

(18) Officers are not familiar with charts and the organization has not performed any boat-reconnoissance work in local waters.

(19) Signal corps are not yet organized. Several men are familiar with the wig-wag signals.

(20) One officer, Lieut. Commander A. U. Betts, has received torpedo instruction at Newport. None of the others are familiar with automobile torpedoes.

(21) This organization is at a great disadvantage in having no one who is familiar with naval matters to instruct them when they are not in camp. Much valuable

time could be saved during the encampment if an officer of the Navy were detailed to instruct them before their next annual drill.

It is also recommended that if the *Michigan* is to take part in the drills next summer a more suitable place than Johnsons Island be selected for the rendezvous, as the depth of water in Sandusky Bay is hardly sufficient for the *Michigan* to anchor in with safety.

(22) The organization deserves great credit for the expense it has incurred in the purchase of vessels and uniforms. Their appearance on shore was good, and the camp on Johnsons Island was kept in excellent condition. The majority of the officers and men are ex-militiamen, and we are of the opinion that with proper naval training they will make a valuable naval auxiliary.

Very respectfully,

J. A. SHEARMAN, *Lieutenant, U. S. N.*
H. H. CALDWELL, *Ensign, U. S. N.*
CHARLES F. PRESTON, *Ensign, U. S. N.*

The COMMANDING OFFICER.

REPORT

OF THE

PRESIDENT OF THE NAVAL WAR COLLEGE AND TORPEDO SCHOOL.

NAVAL WAR COLLEGE,
UNITED STATES NAVAL STATION,
Newport, R. I., September 22, 1897.

SIR: I have the honor to submit a summary of the work done by the Naval War College since I assumed charge.

In compliance with orders from the Department, I relieved Capt. H. C. Taylor as President of the War College December 31, 1896. At that date there were attached to the college as a permanent staff Lieut. Commander J. E. Pillsbury, detached January 9, 1897; Lieut. Marbury Johnston, detached August 19, 1897; Ensign L. A. Bostwick, detached February 15, 1897; Ensign J. V. Chase, to be detached October 4, 1897; Ensign R. R. Belknap, to be detached October 4, 1897.

The permanent staff of the college was increased during the month of April by the addition of Lieut. J. B. Murdock, April 6, and Commander B. H. McCalla, April 27, 1897, and on September 15, 1897, by Commander B. F. Tilley temporarily.

At the close of the session of 1897, September 15, the officers in attendance during the summer were detached, leaving as the permanent staff of the college the following officers: Lieut. J. B. Murdock; Ensign J. V. Chase, to be detached October 4, 1897; Ensign R. R. Belknap, to be detached October 4, 1897.

It is not necessary to enlarge upon the necessity of more officers to carry on the work of the college, particularly as to solving the principal and supplementary problems of the year and preparing for the next summer's course.

During the winter, the officers of the staff continued and completed the work begun during the summer. Papers and data relating to the solution of the several problems in coast defense, strategy, and international law were revised, printed, and circulated among the officers of the Navy. Copies of war charts and plans of Key West, Florida Keys, and strategic points on the Gulf of Mexico were made and many valuable deductions resulting from the discussion and study of these by the college staff and officers in attendance during the summer were revised, classified, and filed in the college archives.

It having been recommended to the Department by the President of the College and the Chief Intelligence Officer that officers of the Office of Naval Intelligence and the Naval War College should interchange at stated periods, Ensign J. V. Chase, of the college staff, was ordered to report to the Chief Intelligence Officer for duty in his office for one month from January 4. At the completion of this duty Ensign Chase returned to the college. When the college staff is recruited to its normal strength, it would be well to order Lieutenant Murdock to Washington for a month to repeat what Ensign Chase did last January.

During the spring detailed preparations were made for the session of 1897. Profiting by the experience of previous years, it was possible to get the problem and plans for the coming session ready before the session began.

On the 1st day of June the session opened, the following officers having reported in attendance or reporting later during the session: Commanders C. M. Thomas, Thomas Perry, and B. F. Tilley; Lieuts. Hugo Osterhaus, C. J. Badger, W. F. Halsey, C. B. T. Moore, F. H. Holmes, T. M. Brumby, E. E. Wright, H. S. Knapp, W. P. White, W. A. Gill, T. Snowden, and J. M. Poyer; Ensigns A. L. Norton, J. H. Sypher, R. H. Leigh, J. R. Campbell, and L. S. Thompson; Lieut. M. J. Shaw, U. S. M. C.; Lieut. G. L. Anderson, U. S. A.

The valuable assistance rendered by the last-named representative of the Army has been already brought to the notice of the Department.

In addition to these officers of the Navy and Army the following attended the whole or a portion of the course by permission of the Navy Department: Lieut. J. P. Wisser, U. S. A.; Commander I. E. Emerson, commanding Naval Militia of Maryland; Commander C. B. Dahlgren, commanding Battalion of the West, New Jersey; Lieut. Commander A. U. Betts, Naval Militia of Ohio; Lieut. E. Clinton Rhoads, Naval Militia of Pennsylvania.

Before the close of the session the following officers were detached from the college by order of the Department: Commander C. M. Thomas, September 1; Commander Thomas Perry, July 14; Lieuts. H. Osterhaus and C. J. Badger, August 20; Lieut. W. F. Halsey, September 8; Lieut. C. B. T. Moore, August 30; Lieut. W. P. White, August 18; Lieut. T. Snowden, July 18; Ensign A. L. Norton, August 14.

While fully recognizing the service necessity of these detachments, it is not improper to deplore the loss of professional opportunities they occasioned. I may add that by no one is the loss so much deplored as by the officers in question themselves.

The general scheme of the course this summer has been the same (somewhat amplified and slightly modified by experience) as that of last year. A full abstract will be submitted at an early date, which, like those of the last four years, already printed and distributed to the service by the Department, will contain a fuller description of the course than the limits of this report will permit, and will also indicate the more important deductions drawn from the study and discussion of the past year upon the various problems of naval warfare and coast defense. The amount of confidential information contained in these yearly abstracts impels me to recommend that they be regarded as confidential publications by the Department.

The course was opened with an able address by the honorable Theodore Roosevelt, Assistant Secretary of the Navy, which has been printed and distributed to the service.

At other times during the summer the officers had also the benefit of listening to addresses by well-known civilians upon subjects closely concerning naval officers in their relations to our national policy abroad. The following gentlemen, by request of the college, delivered addresses:

Hon. John D. Long, Secretary of the Navy.
Moorfield Storey, Esq.: "A Civilian's view of the Navy."
Gen. Francis J. Lippitt: "Naval captures."

Charles H. Cramp, Esq.: "The necessity of Experience to Efficiency."

Hon. C. S. Hamlin: "International law of the Bering Sea question."

The War College is much indebted to these distinguished citizens for their services in this respect. It appears very desirable that naval officers, who are frequently compelled by circumstances to represent their country in difficult and important crises away from the country should have a clear conception of our national policy, and that they should learn this, not from the daily press, nor from the extremists and partisans, but from statesmen of long experience and high reputation in the councils of our country.

It will not be necessary to mention and describe all the lectures, some of which were similar to those of last year, revised where necessary in the light of recent experience; but I think it proper this year to emphasize the value of Captain Mahan's lectures at the War College and the increased interest and admiration that they excite among his professional brethren.

The excellent lecture on "Strategic suggestions," delivered by Capt. D. M. Taylor, of the Ordnance Department of the Army, was full of valuable lessons as to the strategic possibilities of our northern frontier; the necessity in that direction for the combined action of the Army and Navy gave increased weight to the clear and logical arguments of Captain Taylor. It is desirable here to mention how essential to complete efficiency of coast-defense campaigns is the full and frequent discussion and interchange of opinion between our land and naval forces. I submit, with deference, to the Navy Department, and through it to the War Department, that thorough preparation for operations upon the Great Lakes and St. Lawrence River can not be obtained without united efforts of both services extending through many years.

The principal problem of the year was the consideration of the defense of the Delaware and Chesapeake bays in especial, the theater of operations embracing the whole coast from Sandy Hook to the Florida Strait. The solution of this problem will be forwarded to the Department as a confidential document as soon as completed.

The solution of the naval tactical problems was continued this year and again excited much interest. The solving of these problems has for its object (1) the instilling into the mind of quick tactical perception and (2) the inculcating in officers the habit of prompt decision, thus counteracting the tendency to overdeliberation that is apt to be engendered by the consideration of such problems as the principal problem of the year. Much good, it is thought, was derived from these problems this year by the officers in attendance.

Such additions to the library as the limited funds available would allow have been made, great care being taken to select those works that are of recognized authority. The best professional periodicals in English, French, German, Spanish, and Italian have been subscribed for, in order that the college might keep abreast of the professional thought of the day. Many works are still necessary to make the library as complete as desirable. An appropriation for this purpose alone is suggested. Efforts have been made and are still making to render the library complete in the matter of American naval history and naval biography. It is to be deeply regretted that our literature is less full under this last-mentioned head than could be wished.

The interest shown by the officers in attendance in the war games has been very marked, and has probably been largely due to improvements in rules by which these so-called games have more nearly approached the actual maneuvers and movements of vessels and fleets. It is not to be doubted that many professional questions have been determined by these simple means. The college feels that it is building on a sure foundation, having recently received trustworthy information to the effect that the German naval maneuvers have demonstrated the accuracy of the results of these games, and that similar games are, in consequence, to be adopted at the German naval war college.

Situations in international law were given to the officers in attendance for their consideration, and without exception they evinced the greatest interest in their solution.

The questions brought forward in the situations were:

(1) The rights of our vessels in regard to pacific blockade that has not been recognized by the United States.

(2) The protection of the Hawaiian Islands from foreign aggression.

(3) Our rights in regard to the protection of our citizens in Turkey.

(4) The maintenance by the United States of the neutrality of an isthmian canal.

Following the plan adopted during the last three years, the Department authorized parties of officers to make a reconnoissance of the Chesapeake and Delaware bays. Much positive good was derived from their labors, and, incidentally, the negative advantage was gained of emphasizing the necessity of thorough knowledge of their own coast by American naval officers.

In accordance with our practice of previous years and through the courtesy of Lieutenant-Commander McLean, a number of officers in attendance took a course of instruction in torpedoes at the Torpedo Station.

By order of the Department, Lieutenant-Commander Wainwright, Chief of the Office of Naval Intelligence, delivered a lecture at the college. The desirability of close relations between these two institutions leads me to hope that each year we shall have one or two officers from the Office of Naval Intelligence in attendance upon the college session.

In August last, during the session of the college, the Secretary of the Navy, flying his flag in the *Dolphin*, visited the college. At the request of the president of the college, he delivered a most interesting address before the officers in attendance and many distinguished citizens, following which he made a detailed inspection of the college.

In conclusion it affords me pleasure to state that the session which has just drawn to a close has been, it is hoped, no less successful than those of the past three years. The sentiment of approval of the college methods has rapidly gained ground during the past few years among officers of the Navy and many distinguished citizens, and by none more than those officers who coming with a prejudice against the institution have left it with an undisguised sympathy with its ends and practices. Prejudice is generally the child of ignorance. When the great majority of officers shall be alumni of the War College there will be less criticism of its purposes.

The marked continuation of interest manifested by the officers in attendance even to the last day of the session emphasizes the desirability that all or at least a large majority of the officers ordered to the college should be permitted to remain throughout the entire session if compatible with the requirements of the Department.

Although the plan of the course, by departmental approval, contemplated a four months' session, the term was shortened by two weeks by departmental order and much valuable work had to be eliminated. A longer course is needed rather than a shorter one.

To accomplish the results I have suggested, I have the honor to make the following specific recommendations:

(1) That the permanent staff be not less than seven officers.

(2) That as far as the requirements of the Department will permit they be assured of a certain permanence in their duty at the college to continue three years.

In this connection I wish to call attention to the estimates submitted for the support of the War College. I respectfully state that the sum appropriated by Congress for the maintenance of the college for the present year is found inadequate to meet the necessary expenses of the college and the proper care of the building and grounds. With each succeeding year the expenses for the care of the building, renovation, repairs, etc., have increased, while the appropriation has remained the same. I respectfully submit these facts for consideration in connection with the yearly estimate submitted for 1898.

Those officers who could be accommodated in the college derived so much benefit from living constantly within reach of the games and the library that I must earnestly beg that in some way or other, as the Department deems best, the present scanty accommodations be increased.

With regard to the session of 1898 I have to recommend that a larger number of officers be ordered in attendance than this year, i. e., at least thirty. This number should be composed, in my opinion, of at least twenty-five from the grade of lieutenant and above, the majority to be of command rank, and five lieutenants of the junior grade and ensigns. I recommend that the session of 1898 include not less than four months from the 1st of June to the 1st of October; while preferring a term of five months from May 1.

Very respectfully,

C. F. GOODRICH,
Commander, United States Navy, President.

The ASSISTANT SECRETARY OF THE NAVY,
Navy Department, Washington, D. C.

LECTURES.

The following lectures were delivered:

Pay Director Billings: "Supplying the fleet in war (1)."

Captain Mahan: "Strategy (6)."

Captain Taylor: "Naval tactics (4)."

Commander Goodrich: "Coast defense (11); Explanation of course (1); Closing address (1)."

Commander McCalla: "Naval tactics (5)."

Rear Admiral Belknap: "Naval administration (1)."

Lieutenant-Commander Wainwright: "The defense of our coasts and harbors (1)."

Lieutenant-Commander Pillsbury: "The Problem (4)" presented by Ensign Chase.

Lieutenant Murdock: "The Eastern question (1)."

Lieutenant Walling: "Electrical appliances on shipboard (3)."

Lieutenant Bernadou: "Modern explosives (1); the new powder (1)."

Ensign J. V. Chase: "Previous naval operations in the theater of the problem during the war of the rebellion."

Lieut. M. Johnston: "Previous naval operations in the theater of the problem during the Revolution (1)."

Ensign R. R. Belknap: "Previous naval operations in the theater of the problem during the war of 1812 (1)."

Professor Alger: "High explosives (2)."

Surgeon Siegfried: "Naval hygiene (5)."

Naval Constructor Linnard: "Stability of ships (3)."

Capt. D. M. Taylor, U. S. A.: "Strategic suggestions (1)."

Col. H. M. Robert, U. S. A.: "Fortifications (1)."

Lieut. E. St. J. Greble, U. S. A.: "A proposed defense of Narragansett Bay (1)."

Lieut. E. M. Weaver, U. S. A.: "Harbor defense (1)."

Lieut. C. H. Lauchheimer, U. S. M. C.: "Naval law and naval courts (1)."

In addition to the purely professional lectures, the following addresses were delivered by distinguished civilians:

Hon. John D. Long, Secretary of the Navy.

Hon. Moorfield Storey: "A civilian's view of the Navy."

Gen. Francis J. Lippitt: "Naval captures."

Hon. C. S. Hamlin: "International law of the Bering Sea question."

C. H. Cramp, esq.: "The necessity of experience to efficiency."

REPORT

OF

THE BOARD OF VISITORS

TO THE

NAVAL ACADEMY, 1897.

ANNAPOLIS, MD., *June, 1897.*

SIR: The Board of Visitors to the Naval Academy met at Annapolis May 31, and organized by electing Capt. John Wilkes, of Charlotte, N. C., president; J. W. Miller, esq., of New York City, vice-president, and Lieut. Edwards F. Leiper, secretary.

It was in session from May 31 to June 5, inclusive, during which time it inspected the buildings and grounds of the Academy, examined into matters relating to its organization and administration, and witnessed the exercises in the programme laid down by the Superintendent. As the result of its deliberation, the Board begs leave to submit the following recommendations:

(1) That all candidates for entrance to the Naval Academy be appointed September 1 of each year, that they be examined during the following April by a board at the naval station nearest their home, and that the successful candidates report at the Academy in May for practical work during the summer months, preparatory to the regular course, which begins in October.

(2) That the age of entrance to the Academy be from 15 to 18, so that the young officer shall not be over 22 years of age at the end of his course.

(3) That the four years' curriculum be alike for all, so that every graduate shall enter the service under like conditions and be assigned to alternating duties on deck, in the engine room, or in charge of the purchasing and commissary departments of the vessel. The graduate thus becomes, at the end of his four-year course, a naval officer, enters

the wardroom as an ensign, is trained to habits of command, and associates under like circumstances with his brother officers of higher rank.

(4) That if the four-year course, alike for all, demands the elimination of certain studies that such studies as calculus and the method of the least squares be dropped.

(5) That the classes at the Academy be known by their date of entrance, and that the term "cadet" be discontinued and the traditional and time-honored title of "midshipman" be adopted therefor.

(6) That the officers and cadets be required to salute the nationa colors by removing their hats, and that the custom of saluting the national colors with the hand, as now practiced, be discontinued.

(7) That the Secretary of the Navy appoint a commission to look into the needs of the plant in the department of steam engineering at the Naval Academy and recommend to Congress such appropriation as may be necessary to put such plant in efficient condition for the use of the Academy.

(8) That by a unanimous resolution "the Board calls attention to the obvious fact that the irregular method of constructing buildings upon the Academy grounds has been wasteful and unsatisfactory, and recommends that in future whatever construction obtains here shall be in conformity with a general plan previously adopted. The Board calls attention specially to the construction of the building known as 'Cadets' Quarters.' To this building the Board has given particular attention, and, as the result of investigation and direct inspection, announces the opinion that the building is unsafe and should be replaced by a substantial structure suited to the purposes in view, at the earliest practicable date."

(9) That the Board, commending the long and faithful services of Prof. Antoine J. Corbesier, sword master at the Academy, unanimously recommends that "when, in the opinion of the Superintendent of the Naval Academy at Annapolis, Md., Prof. Antoine J. Corbesier is no longer capable of performing the duties of the position he now holds, an order may be made by the Secretary of the Navy placing him upon the retired list of the Navy for life, with half his present pay, subject to the approval of the President."

(10) That the Board heartily commends the proposed erection of a monument to the memory of George Bancroft, ex-Secretary of the Navy and founder of the Naval Academy, proposed by the Alumni Association.

(11) That the Board specially calls attention to the reports of the subcommittees herewith submitted, which were read to the Board, unanimously approved, and made a part of this report.

In conclusion, the Board of Visitors takes pleasure in acknowledging the cordial reception and uniform courtesy accorded them at the Academy by the officers. Their information and counsel were cheerfully given and their efforts to facilitate the labors of the Board in every way were unremitting.

JNO. WILKES, *President.*
J. W. MILLER, *Vice-President.*
F. H. WILSON.
F. W. HACKETT.
JOSEPH J. HART.
GEORGE E. GARRETSON.
THOS. H. CARTER.
WM. LINDSAY.
G. E. FOSS.
JOHN L. PRATT.
ALFRED HEMENWAY.

The SECRETARY OF THE NAVY.

APPENDIX.

UNITED STATES NAVAL ACADEMY,
Annapolis, Md., May 31, 1897.

MINUTES OF MEETING OF BOARD OF VISITORS.

At 2.15 p. m. the Board met, all members present except Mr. Hemenway and Mr. Kellogg, and organized by unanimously electing Capt. John Wilkes president of Board.

It was directed that a stenographer be employed to attend the meetings of the Board, the expense of which is to be met by the members therof.

On motion, it was decided that the committees of the Board be as follows:

(1) Conditions of admission to and discharge from the Academy, discipline, drill, practical exercises, administration, and police.

(2) Subjects of study and standard of scholarship, seamanship, ordnance, navigation, steam, mathematics, physics, mechanics, English, Languages, drawing, physiology, and hygiene.

(3) Grounds, buildings, sanitary condition, finance, and library.

(4) Final report.

On motion of Senator T. H. Carter, the Board requested Captain Wilkes to make the address to the graduating class. Captain Wilkes accepted, and thanked the Board for the honor conferred.

The president called the Board's attention to the receipt of several communications from the Superintendent of the Naval Academy, which would be referred to the proper committees when appointed.

The Board, on motion, adjourned at 2.45 p. m., to meet again at 8.30 this p. m.

UNITED STATES NAVAL ACADEMY,
Annapolis, Md., May 31, 1897.

At 8.50 p. m. the Board met, the president in the chair, and all members present except Messrs. A. Hemenway and S. W. Kellogg.

The following committees were announced by the president:

(1) *Conditions of admission to and discharge from the Academy, discipline, drill, practical exercises, administration, and police.*—Hon. William Lindsay, Hon. F. H. Wilson, G. A. Garretson, esq.

(2) *Subjects of study and standard of scholarship, seamanship, ordnance, navigation steam, mathematics, physics, mechanics, English, Languages, drawing, physiology, and hygiene.*—Hon. G. E. Foss, J. W. Miller, esq., Joseph J. Hart, esq.

(3) *Grounds, buildings, sanitary condition, finance, and library.*—Hon. Thomas H. Carter, Frank W. Hackett, esq., John L. Pratt, esq.

The appointment of the committee on final report was deferred to another meeting.

On invitation from the Board, Capt. P. H. Cooper, United States Navy, Superintendent of the Naval Academy, attended the meeting and explained the various features of H. R. bill No. 5284, a bill "to regulate the course of study at the United States Naval Academy, and for other purposes," and also explained the proposed reconstruction of the academic grounds and buildings, using the architect's plan for that purpose.

The president informed the Superintendent that the Board would like to have any suggestions that he might have to make, now or at some future time. The Superintendent stated that he had only two things that he would like to lay before the Board, one being the bill already in the hands of the Board and the other about the sailing vessels for the Academy. The Superintendent then withdrew from the meeting.

On motion of Senator Lindsay, Mr. J. W. Miller was elected vice-president.

On motion of Mr. Miller, it was agreed that when the Board adjourn it adjourn subject to the call of the president. There being no further business before the Board, it adjourned at 10.35 p. m.

UNITED STATES NAVAL ADADEMY,
Annapolis, Md., June 3, 1897.

The Board met at 11 a. m., president in the chair; all members present except Hon. T. H. Carter, United States Senate, and S. W. Kellogg, esq.

The president stated that the Board would like to know the condition of the committee reports. Mr. Garretson, on the part of the committee on conditions of admission to and discharge from the Naval Academy, etc., informed the Board his committee would be ready to report to-morrow; and Mr. Miller, of the committee on subjects of study, etc., to-morrow, or this afternoon.

A general discussion was then had on the subjects pertaining to committee No. 1, Lieut. E. F. Leiper, U. S. N., secretary of the Board, and Chief Engineer C. W. Rae, U. S. N., head of department of steam engineering, on invitation, gave their views to the Board on the best solution of the line and staff differences; also on the subjects of study and the selection of candidates for admission to the Academy.

By direction of the Board, Lieutenant Leiper addressed a letter to the heads of departments, stating that the Board would be pleased to receive any suggestions or recommendations they might wish to offer for consideration.

Alfred Hemenway, esq., was appointed to committee No. 1.

The following members were appointed as the committee on final report: Hon. T. H. Carter, Hon. F. H. Wilson, J. W. Miller, esq., F. W. Hackett, esq., Joseph J. Hart, esq.

Communications were received from Commander B. F. Tilley, U. S. N., head of department of navigation, and Prof. N. M. Terry, head of the department of physics, explaining the immediate needs of their respective departments. Referred to the committee on buildings and grounds, etc.

At 1.30 p. m. the Board adjourned.

UNITED STATES NAVAL ACADEMY, *June 4, 1897.*

At 2.55 p. m. the Board met, the president in the chair, and all members present except Hon. T. H. Carter and S. W. Kellogg, esq.

On the president's call for committee reports, Mr. Hackett, for the committee on grounds, buildings, etc., read and submitted the report, which was adopted and referred to the committee on final report.

Hon. F. H. Wilson and Mr. G. A. Garretson read suggestions proposed for incorporation into their committee's report (committee No. 1, conditions of admission to and discharge from the Academy, etc.).

Mr. Miller, for committee No. 2, subjects of study, etc., read that committee's report so far as completed. The committee accepted the suggestion of Mr. Garretson, and changed the proposed age of admission in the report from 15 to 17 to 15 to 18.

At 3.50 p. m. the Board adjourned to meet at 5 o'clock.

UNITED STATES NAVAL ACADEMY, *June 4, 1897.*

At 5.30 p. m. the Board met, the president in the chair; all present except Senator Carter and S. W. Kellogg, esq.

Mr. Hackett read a letter in regard to the retirement of Prof. A. J. Corbesier, instructor of swordsmanship at the Naval Academy, with the rank and pay of a lieutenant of the junior grade in the Navy. After a general discussion on the merits of Professor Corbesier's case, the following recommendation, on motion of Mr. Pratt, seconded by Mr. Hackett, was unanimously carried:

"When in the opinion of the Superintendent of the Naval Academy, at Annapolis, Md., Prof. A. J. Corbesier is no longer capable of performing the duties of the position he now holds, then an order may be made by the Secretary of the Navy to place him upon the retired list of the Navy for life, upon half his present pay, subject to the approval of the President."

On motion of Mr. Wilson, committees Nos. 1 and 2 were consolidated, Messrs. Wilson, Garretson, and Miller becoming a subcommittee, with Mr. Miller as chairman.

Mr. Wilson moved that the Secretary of the Navy be requested to appoint a commission to look into the needs of the engineering plant at the department of steam engineering at the Naval Academy, Annapolis, Md., and to recommend to Congress such appropriation as is necessary to put such plant in efficient working condition for the uses of the Academy. Adopted.

The minutes of the previous meetings of the Board were read by the secretary and adopted.

During the reading of the minutes, Hon. Thomas H. Carter entered and took his seat.

It was moved by Mr. Hackett and seconded by Mr. Garretson that the Board indorse the proposed erection of a monument to the memory of Hon. George Bancroft, ex-Secretary of the Navy and founder of the Naval Academy, proposed by the alumni association. Unanimously adopted.

At 6.30 p. m. the Board adjourned until 9 o'clock to-morrow morning.

UNITED STATES NAVAL ACADEMY,
Annapolis, Md., June 5, 1897.

The Board met at 10.30 a. m., the president in the chair; all members present except S. W. Kellogg, esq., and Joseph J. Pratt, esq.

Mr. Miller, for committees Nos. 1 and 2 (consolidated), presented the report of that committee, which was adopted.

On motion of Mr. Hackett, a vote of thanks was unanimously tendered by the Board to Lieut. E. F. Leiper, U. S. N., secretary of the Board, for his uniform courtesy and the efficient manner in which he discharged his duties in connection with the Board.

On motion of Mr. Foss, the Board unanimously thanked Captain Wilkes for the efficient manner in which he discharged his duties as president of the Board.

Lieutenant Leiper and Captain Wilkes expressed their appreciation of the Board's action.

On motion of Senator Carter, the following recommendation was adopted and referred to the committee on final report for recommendation in their report:

"The Board calls attention to the obvious fact that the irregular method of constructing buildings upon the Academy grounds has been wasteful and unsatisfactory, and it is recommended that in the future whatsoever construction obtains here shall be in conformity with the general plan previously adopted. The Board calls attention especially to the condition of the building known as 'Cadets' Quarters. To this building the Board has given particular attention, and, as the result of investigation and direct inspection, announces the opinion that the building is unsafe and should be replaced by a substantial structure suited for the purpose in view, at the earliest practicable date."

The Board unanimously authorized the committee on final report to correct the phraseology and arrangement of the respective committee reports.

On motion of Mr. Miller, a vote of thanks was unanimously tendered to Paymaster J. P. Loomis, U. S. N., for the care he had taken of the Board.

Captain Wilkes, president of the Board, after a few remarks on the work done, announced the Board adjourned sine die, at 11.20 a. m.

UNITED STATES NAVAL ACADEMY,
Annapolis, Md., June 3, 1897.

To the Committee of the Board of Visitors on the Department of Physics.

GENTLEMEN: Complying with the invitation of the committee of the Board on the department of physics, I would state that the most urgent want of this department is more working room for the practical exercises in physics, particularly electrical measurements and experiments in heat.

The recommendations of other Boards of Visitors for an addition to the building now occupied by this department, or of the commission which recently reported upon the rebuilding of the Naval Academy, if carried into effect, would supply this want.

Respectfully submitted.

N. M. TERRY,
Professor, Head of the Department of Physics.

UNITED STATES NAVAL ACADEMY,
June 3, 1897.

To the PRESIDENT OF THE BOARD OF VISITORS.

SIR: I have the honor to make the following suggestions in regard to the department of navigation:

1. A new observatory building is urgently needed. Its character and cost will depend upon the general plan of improvement adopted for the Naval Academy.
2. There should be an immediate appropriation of $1,500 for new sextants. Those now used by the cadets for their practical work and examinations have been used for this purpose for twenty-five years and many of them are entirely worn out.
3. There should be a specific annual appropriation of about $800 for the purchase and repair of instruments for the department of navigation.

Very respectfully,

B. F. TILLEY,
Commander, Head of Department of Navigation.

WASHINGTON, D. C., *June 2, 1897.*

GENTLEMEN: We beg to call your attention to the long and faithful service of Prof. Antoine J. Corbesier, instructor of swordsmanship at the Naval Academy.

He is now nearing the age of retirement for Army and Naval officers, but he is not such an officer in the Navy as will authorize his retirement without special legislation.

The previous Boards have recommended special legislation of the character, and your recommendation would be valuable toward inducing Congress to act in the matter.

We trust that you may find it proper to recommend the professor's retirement with the rank and pay of a lieutenant of the junior class in the Navy.

Very truly yours,

JOHN C. CHANEY.

The BOARD OF VISITORS,
United States Naval Academy.

REPORT OF THE SPECIAL COMMITTEE ON CONDITIONS OF ADMISSION TO AND DISCHARGE FROM THE ACADEMY, AND SUBJECTS OF STUDY AND STANDARD OF SCHOLARSHIP.

Your committee has received reports from the subcommittees on discipline, drill, practical exercises, administration, and studies, and begs leave to make the following combined report:

The subject of study and standard of scholarship is dependent, first, upon the conditions of admission, and second, upon the aims of the Naval Academy.

I. *Conditions of admission.*—We find that a general feeling exists throughout the country against a higher requirement for entrance to Government schools; but we see no reason why the standard of admission should not give an indication that the candidate has some small bent toward the service. We therefore recommend that the entering examinations include the naval history of the United States, at least to the extent of the names of our country's marine heroes and a description of the battles which they fought. Each candidate should also have a general knowledge of the ships named after the cities or State in which he resides. He should also have some practical acquaintance with the small arms in use by the militia of his section of the country, or, if there be no militia near his place of residence, he should be able to describe the local arm common to his vicinity.

These additional requirements are trivial, provided the following changes be made in the conditions of admission. All candidates should be appointed on September 1 of each year for entrance to the Naval Academy; they should be examined during the following April by a board at the naval station nearest to their home. The age limit should be changed, so that at the end of a four years' course the young officer should not be over 22; in other words, it should be from 15 to 18. The entering class should report in May and should be kept at the Academy during the summer months, engaged in practical work, especially afloat, in brigs, cutters, and steam launches. It should be given ample opportunity to perfect itself in "longshore," signaling, and target practice by means of boat parties in Chesapeake Bay. The fourth class will thus begin its October course after eight months preparatory study, without expense to the Government, and with four months of service exercise it will have absorbed, in a manner attractive to youth, many elements of the naval profession; it will be a homogeneous body of enthusiastic young men who have learned to act on their own resources.

II. *Subjects of study and standard of scholarship.*—These depend upon the aims of the Academy. The report of your committee, from the short time in which it must accomplish its work, must be more or less superficial, but we have based our conclusions upon views received from distinguished officers and civilians who have been in the Navy.

While the Naval Academy is to-day graduating alumni second to none of those from any college in the country in technical knowledge and scientific ability, it is not sending into the service the best sea officer possible, considering the time and money expended on his education. Looking about for the reason of this condition of affairs, we do not think it lies altogether within the walls of this institution. The various drills which have been witnessed show the highest standard of proficiency. The practical exercises in boats, sailing, seamanship, navigation, and athletics are highly commended. The discipline is excellent and fully up to the high standard expected of this Academy. The evil must therefore lie either in the theoretical studies, or perhaps rather in the trend of thought which has permeated many educational institutions during the past few years, and which has exerted an influence in the Navy as well as in the other walks of life. This influence places scientific attainment above the study of man; it advances theories against practice; it produces critics instead of leaders; it places personal preferment above patriotic devotion. As applied to the Navy in general, we find undermining evils of a most definite character, which should be at once eradicated. The first aim of the Naval Academy should be to make sure that no seed of discord, which may injure the service as a harmonious whole, should enter the minds of the youths. The studies and exercises should be confined to preparing young men for all junior positions on board ship, and technical study should be simply a groundwork for future development at a post-graduate course.

A curriculum of four years is certainly sufficient to fit the young men for all subordinate work on board even a modern man-of-war. Each and every graduate after a four years' course, alike for all, and under exactly similar conditions, would then enter the service and could be assigned to alternating duty, either on deck, the engine room, in command of the police of the ship, or in charge of the purchasing and commissary of the vessel. In short, the graduate becomes a naval officer, entering the wardroom as an ensign, trained to habits of command, and associating at a proper age, under like circumstances, with his brother officers of higher rank. The present staff of the Navy asks for lineal rank; in this way each alumnus has it. The line wishes homogeneity on board the ships; it thus obtains it. The country demands the strictest discipline and submission to one-man power, and it gains it; differences occasioned by present rival claims of different corps cease to exist; the staff disappears, and the all-round man comes to the front.

Post-graduate courses, either at the Naval Academy, the War College, or the Torpedo Station, will train the special minds of those men who, after experience at sea, desire to perfect themselves on scientific lines, and may be used to educate a small corps of experts, which should be entirely divorced from the hardships as well as from the rank and promotion of the seafaring navy. This corps of experts should include the present so-called constructors, engineers, and civil engineers, as well as the officers who wish to devote their lives to the construction of armor and to ordnance.

The strife between staff and line up to the present time has not been altogether an evil, as it has produced a rivalry and developed men capable of interchangeable duties. Instances are not rare to-day of graduates who have fitted themselves for all positions and lines of research, but they have not accomplished this at the Naval Academy but after leaving it, and from experience and digested study; but the tendency to magnify the knowledge of material has led thought away from the true scope of naval training, while the personnel, by wrangling over individual preferment, has lost sight of the true dignity and development of the sailor.

This brings us back to the necessity that we must graduate at the Academy men fitted to command their fellowmen amid the surroundings of the sea. With these ends in view, we recommend as follows:

(1) Entrance age for candidates 15 to 18.

(2) Appointments to be made September 1.

(3) Examination to include United States naval history, general description of the ships named after the locality where the candidate resides, also knowledge of local small arms in that locality.

(4) Entering examination in April, and by naval boards of locality of candidates.

(5) All the fourth class to enter in May and to be given independent practical instruction at or near the Academy until October.

(6) The whole curriculum to be at the Academy and the course be four years, and alike for all.

(7) If the four years' course demands, then certain studies should be eliminated, especially calculus and the method of least squares.

(8) A few lectures on professional subjects should be given by prominent men.

(9) A sailing practice vessel and a small sailing brig should be built for the use of the cadets.

(10) Better plants are needed in the department of seamanship, gunnery, and steam.

(11) The facilities for gun practice and steam engineering afloat are totally inadequate. A modern steam vessel should be permanently stationed at the Academy.

(12) Many instruments of the department of navigation are old and unfit for use. Fifteen hundred dollars should be at once appropriated for new sextants, and $800 annually hereafter for the purchase and repair of instruments.

(13) The classes should be instructed in the proper use of the voice. This can be accomplished by encouraging voluntary debates upon professional subjects and stated cases of international law.

(14) The senior class should be allowed to draw a certain portion of their salaries, and by a system of personal accounts be held responsible for the expenditure of their money.

(15) The term "cadet" should be replaced by the traditional, time-honored title of midshipman, and classes should be known by their date of entrance.

(16) Officers and cadets should be required to salute the national colors by removing their hats instead of saluting with the hand, as is practiced now.

Respectfully submitted.

J. W. MILLER.
GEORGE E. GARRETSON.
FRANCIS H. WILSON.

REPORT OF THE COMMITTEE ON GROUNDS, BUILDINGS, SANITARY CONDITION, FINANCE, AND LIBRARY.

The committee on grounds, buildings, sanitary condition, finance, and library beg leave to submit the following report:

We regret that official business has detained Senator Carter at Washington, so as to deprive us of his valuable help and advice. It has been our endeavor to visit personally every part of the Academy grounds, and to inspect such of the buildings as have seemed to invite special observation. We have been shown the plan of the proposed extension upon the water front at the foot of the drill grounds. The improvement appears to have been wisely designed, and we have no hesitation in saying that it is of the first importance. So far as we may judge, the money appropriated therefor is being judiciously expended. The projected sea wall is, of course, absolutely needed for the protection of the grounds, as well as for sanitary reasons. It will not be questioned that the work should be pushed forward until the entire wall shall have been built and the space therein inclosed be filled up.

The handsome grounds of the Academy, with its walks and trees, are a credit to the country. As might be expected, they are kept in an exemplary condition. The neatness and perfect cleanliness everywhere apparent attests fidelity on the part of those to whom the care of the grounds has been committed. The appearance of the grounds, while a source of pleasure to the visitor, is a factor of no small value in its moral effect upon the young gentlemen whose daily life at a formative period is passed here.

We sincerely wish that we might apply like terms of commendation to the buildings at the disposal of the authorities for the instruction of the naval cadets. These various buildings furnish object lessons to the student, who necessarily grows familiar with their advantages and their defects, and it is of the highest concern that they should be well adapted to the important purposes for which they are used.

Unhappily, there is much to condemn in the present condition of several of these structures. Instead of something that approaches a system in architecture and arrangement of the various buildings, one sees buildings of varied design that have apparently but little relation to each other. A few may be pronounced good, others passably good, while at least three or four are so badly constructed and so wholly unsuitable that they deserve only to be torn down forthwith.

The armory we must specially condemn. This building was put up between 1877 and 1881. It is a one-story brick, with slate roof, having a length of 250 feet and a width of 82 feet. The ground on which it was erected has not afforded a substantial foundation; and as a result, one of the longitudinal walls has to be shored up for its entire length. The interesting spectacle is afforded of a failure in engineering and an attempted makeshift that conveys the idea of a threatened collapse that may occur at any day. The effect of this advertised insecurity upon those who are obliged to view it may well be imagined. Yet the interior has to be devoted to purposes of an armory and ordnance workshop, and it is to be remarked that the spacious floor is occupied for the annual "June ball" at the graduating exercises. This structure has already been condemned as unsafe by a special commission, appointed in 1895, by order of the Department. We think it would be remiss in our committee not to lay emphasis upon the unfortunate state of things that permits a continued use of this insecure structure, and we hope that Congress will appropriate the means by which this dangerous condition may be done away with.

We are impressed with the fact that certain grave defects exist in the building known as cadet quarters. Not only this, but the original plan of the living rooms is radically wrong. These rooms are badly ventilated, are small, and have no alcoves, consequently their occupants (for two cadets are assigned to each room) are deprived of needed privacy. This should not be. Moreover, there is reason to fear that portions of the building itself are to-day in a condition not entirely safe. We agree with the result reached by the special commission just referred to in January, 1896, that the building should be torn down (Senate Doc. No. 238, Fifty-fourth Congress, first session, p. 4). Certainly there is urgent need that suitable quarters be furnished without delay.

The head of department of navigation has informed the Board that a new observatory building is urgently needed, the character and cost to depend upon the general plan of improvement adopted for the Academy. We are free to say that the present small structure is obviously inadequate for the purposes of an observatory.

Another building that, in the interests of safety no less than economy, ought to be torn down is Boathouse No. 33.

The substitution of an electric plant for lighting the Academy grounds and buildings in place of gas must be brought about at no distant day. It has been suggested that this plant be built in such manner and supplied with such machinery as would make it a very important help in educating cadets in handling similar plants on shipboard. Without going into details, we will remark that it is unwise to lay out money in an attempt to patch up the gas works.

At the pumping station coal is left exposed to the weather for want of a covering, and we believe that money could be well expended in building a shed there. Not a little would thereby be saved in the quality of the coal.

There is no subject that deserves more intelligent and liberal treatment than that of the sewerage system of the Academy. The plans of this improvement have heretofore received the careful attention of the Department. We find that the execution of the work is intrusted to competent hands. A great deal has already been accomplished, and the prospect is that the Academy will soon enjoy the benefits of an admirably arranged system.

The methods and appliances relied on to guard against loss by fire appear to be suitable and adequate.

Your committee visited the library, and found it accommodated in a building with its outgrowth, that appears well adapted for the proper care and preservation of books. To a considerable extent, a library is a fair test of the standard reached by an educational institution. The number and character of the books on its shelves and the accommodations afforded them reflect largely the real spirit and aims of those to whom are committed the duty of instruction. It is a satisfaction to report the library of the Academy as being a credit to the Government. Its points of excellence are many, and its deficiencies, aside from those that attend all such collections, are few in number. A good many volumes are in need of rebinding. There are also pamphlets which should be bound. We indorse the recommendations of the librarian, that a permanent appropriation be made for this purpose.

In treating of the library, the fact is forcibly presented to your committee that this valuable collection of books is not fulfilling all purposes to which it should be applied. We assume that the chief object of its existence is to aid in the work of educating young naval officers for the service of the country who shall be equal to the duty of maintaining the honor of the flag and present abroad the type of a true officer and gentleman. To this end a broad and generous culture is essential. The young man who comes here should be taught something of the realm of books, his taste for general reading fostered, and his mind developed by contact with the great minds of the past. We have no space here to enlarge upon this suggestion, but we earnestly trust that the system of study pursued here shall not lose sight of the important truth that no education is worthy of the name that does not point the way to the student to a proper use of books.

We concur in the recommendation of the Board of last year, that an annual appropriation be made of $1,000 to purchase scientific works other than those relating strictly to professional subjects.

We recommend that the pay of assistant employed in the library be increased and fixed at $900 per year.

We find that the several appropriations made for the Naval Academy for the fiscal year ending June 30, 1897, have been expended as directed in such appropriation bill except a few small balances, which will be paid out before the end of the fiscal year, these expenditures all being made under orders from the Superintendent or from the Navy Department.

We believe these expenditures were made and accounts kept in a creditable and businesslike manner.

In conclusion, we may observe that in the recommendations we have had the honor to enumerate we have not been unmindful of the calls in various directions for expenditures of public money. We have suggested the incurring of expense only in cases where we are obliged to admit that there is no economy in delay, where the need is imperative, and action, in our deliberate judgment, can no longer be postponed.

Frank W. Hackett.
Jno. L. Pratt.

I concur in the foregoing report.

Thos. H. Carter.

REPORT

OF THE

CHIEF OF THE BUREAU OF YARDS AND DOCKS.

DEPARTMENT OF THE NAVY,
BUREAU OF YARDS AND DOCKS,
Washington, D. C., October 1, 1897.

SIR: In accordance with the order and instructions contained in the Department's letter dated July 6, 1897, I have the honor to submit herewith a report of the operations at United States navy-yards and stations, coming under the cognizance of the Bureau of Yards and Docks, for the fiscal year ended June 30, 1897, accompanied by a set of my annual estimates for the fiscal year ending June 30, 1899, and such other papers as are required by law.

Very respectfully,
E. O. MATTHEWS,
Chief of Bureau of Yards and Docks.

The SECRETARY OF THE NAVY.

DEPARTMENT OF THE NAVY,
BUREAU OF YARDS AND DOCKS,
Washington, D. C., October 1, 1897.

SIR: I have the honor to submit the following estimates of amounts needed by this Bureau for the fiscal year ending June 30, 1899, with a report of the work done during the year ended June 30, 1897.

The estimates received from the commandants of the various navy yards and stations amount to the following:

Improvements	$8,868,806.87
Repairs and preservation	581,826.91
Maintenance	369,279.02
Civil establishment	108,155.61
Total	9,928,068.41

After a careful examination, the above estimates have been reduced, as follows:

Improvements	$1,554,887.00
Repairs and preservation	400,000.00
Maintenance	300,000.00
Contingent	20,000.00
Civil establishment	72,710.44
Naval Home	77,725.00
Support of Bureau, salaries	8,980.00
Total	2,434,302.44

IMPROVEMENTS.

Under improvements needed at the various yards and stations the following are considered the most pressing:

Navy-yard, Portsmouth, N. H.—The building used as a dispensary is an old frame structure erected about 1802. Was occupied as a dwelling for thirty-eight years, and since then as a hospital and dispensary. It is very rotten and unsanitary. A new building is necessary; $4,000.

In the act approved July 19, 1892, the sum of $6,500 was appropriated for a coal pocket. When the plans were completed, it was found that the appropriation would be insufficient. It is now requested that this money may be reappropriated for a coal shed.

Navy-yard, Boston, Mass.—A dry dock of sufficient size to take the largest battle ships is much needed on the New England coast, and Boston is considered in all respects the best site. It is easy of approach, well protected from the enemy's fire, with an abundant supply of skilled labor and material conveniently at hand, all tending to make it the proper place for such a dock. The estimated cost of such a dock is $1,250,000; to commence, $300,000.

Building 42, the steam engineering machine shop, has in the large court a space known as the "Crystal Palace," the roof of which is in a most deplorable condition, and the valuable tools placed therein require proper protection from the weather. It is desired to put on a new iron roof; estimate, $15,400.

Navy-yard, New York.—The berthing capacity of this yard for ships is very cramped; it is therefore desired to dredge out the Wallabout near the causeway and open up the Whitney Basin, thereby nearly doubling the available water front for large ships. $70,000 is requested toward this object.

The wharf between the stone dry dock and Main street is a mixture of wood and stone, which is being undermined and has become dangerous. Being one of the most important berths on the front, it should be rebuilt solidly as soon as possible. Estimate, $60,000.

A large portion of the quay wall at the coal dock has been contracted for during the past year, upon most favorable terms, with P. Sanford Ross; but a considerable portion remains to be built. The whole of this and the wharf between the stone dock and Main street are unsanitary, as carcasses, etc., are constantly lodging under them. Estimate, $30,000.

The space between the dry docks and the yard wall on Clinton avenue is much above grade, and requires grading and draining to prevent the muddy water running into the docks. The sum of $18,000 is needed, but $10,000 asked for this year.

The causeway from the yard to the Cob Dock will soon be completed, and it should be paved, as also the roads leading to it. Estimate, $20,000.

Many of the streets near the stone dry dock are almost impassable in wet weather, and it is proposed to pave them with Belgian blocks. Estimate, $10,000.

The part of the yards and docks workshop in which the main lighting plant for the yard is placed is in a ruinous condition. The chimney had to be pulled down last year because it was dangerous. It is desired to rebuild this part of the building in a substantial manner. Estimate, $20,000.

The constantly increasing demands upon the electric plant require an addition to it. Estimate, $15,000.

The steam engineering blacksmith shop is entirely too small for the demands upon it, besides being at some distance from the machine shop. The coppersmith shop is too small and badly located for economical work. The old erection shop was burned some years ago, and a temporary structure erected in its stead. It is now desired to erect a proper building for erecting shop, and large enough to take the copper and blacksmith shops. Estimate, $65,000.

A storehouse for steel plates, frames, angles, etc., convenient to the construction workshops, is greatly needed. Estimate, $17,500.

This yard, being the principal supply yard of the country, is very much in need of a specially constructed storehouse, removed from all other buildings in the yard, for the large quantities of oils and varnishes that must be kept on hand ready for issue or shipment. Estimate, $46,300.

Building No. 31, storehouse for "Supplies and accounts," became so cracked, settled, and dangerous that, in accordance with the recommendation of a board of survey, it has been directed to be torn down. A new storehouse to take its place is much needed and should be fireproof. Estimate, $49,437.

For storage of chains and anchors a shed with solid floor is needed, with appliances for testing chain, annealing, and painting. Estimate, $11,000.

Navy-yard, League Island, Pa.—The west end of the back channel is now being dredged to serve as a fresh-water reserve basin in which some of our largest and most expensive ships will be laid up in "reserve." As they must be kept in serviceable condition and ready for sea at short notice, it is considered important to have a dock large enough to take them. Total estimate, $1,200,000; this year, $300,000.

The east end of the island was raised by pumping the dredged material, from an island above the city, over on it. The material was brought down in scows and dumped on the Delaware front of the yard, then pumped over on the island. This stirring up of the mud has caused the whole Delaware front to silt up, in some places as much as 6 or 8 feet. Estimate, for dredging, $20,000.

To secure vessels in the reserve basin it will be necessary to build heavy cribs for them to moor to, and these will have to be connected with the shore by wharves. It is desired to build six cribs this year, and for that purpose the sum of $56,000 is asked, to be made immediately available.

To extend the reserve basin the estimate for the year is $120,000.

To continue the west wall of the causeway connecting the yard with the foot of Broad Street, estimate $20,000.

For roads leading to the reserve basin, the sum of $10,000.

At present time there is no suitable storehouse for the heavy articles from ships in reserve or for wet provisions. It is desired to build a large building with light walls and roof but very solid floor. Estimate, $27,041.

The boilers for heating and for electric lighting are old and need renewing. Estimate, $5,500.

The Bureau of Ordnance request to have a repair shop sufficient for effecting needed repairs to the smaller guns of the ships in reserve. Estimate, $60,000.

Navy-yard, Washington, D. C.—The electric lighting plant is old, unreliable, and not adapted to the work required. To guard against failure and put it in good working order, with some new dynamos, the estimate is $16,000.

The ordnance has no proper place for the storage of the very valuable guns and gun mounts when completed. To provide proper storage for these, the estimate is $35,000, and is very necessary.

The old wooden roof of the south gun shop has been patched and spliced until it is now time to replace it with a steel roof. This is also necessary as a precaution against fire. Estimate, $25,347.

Navy-yard, Norfolk, Va.—This yard, the most important south of New York, has no means of docking a battle ship; therefore a first-class dock is estimated for. Total, $1,250,000; for this year, $300,000.

The electric lighting and power plant is insufficient for the growing needs of this yard. It is desired to increase it by degrees, and for this purpose $20,000 is requested.

In these southern waters the teredo is very active, and unless the quay walls are extended some of the wooden wharves will have to be renewed at great expense, simply to last a few years, when it will have to be repeated as the teredo attacks any wood exposed to the direct flow of salt water. Therefore, the sum of $50,000 is requested for the extension of quay walls. These walls are founded on piles that are cut off 28 feet below the coping. It is this that makes them much more expensive than those in the northern ports.

The present ship fitters' shop is about 2,000 feet away from the dry docks, and it would save a great deal of time and expense connected with work on ships in dock to have a smaller one near the docks. Estimate, $40,000.

The tracks for the 40-ton traveling crane at the present time extend around the wooden dock only, but it is desired to extend them around the granite dock also. The estimate is $13,000.

In the steam engineering erecting shop there are no means of handling the heavy weights, so a 40-ton overhead traveling crane has been estimated for at $23,845.

The water supply of the yard is derived from artesian wells, from which it has to be pumped. There is no reserve in case of accident, so it is desired to put in an elevator tank for the reserve, to hold 270,000 gallons, or about three days' supply. Estimate, $13,000.

To continue and keep in repair grading and paving, estimate $10,000.

Naval station, Port Royal, S. C.—The entrance to this wooden dock has wing dams projecting in front, which are protected by wood. The teredo is very active here and soon destroys the protection. It is desired to substitute concrete protection walls for the wooden ones, to prevent the sand silting away from behind the abutments. Estimate, $15,000.

Steam engineering asks for a repair shop. Estimate, $55,000.

Navy-yard, Mare Island, Cal.—The only dry dock on the Pacific Coast capable of taking a battle ship is at Port Orchard, Puget Sound, Wash. As that is about 900 miles away from this yard, at which are repaired the vessels of the Pacific and Asiatic stations, it is thought that this yard should have a second dry dock, and that large enough to take a battle ship. Estimate for this year, $300,000.

Owing to insufficient storage room, large quantities of very valuable and much-needed lumber is exposed to the weather. A large lumber shed is needed. Estimate, $28,000.

All the coal for "Construction and Repair" and "Yards and Docks" has upon delivery to be hauled up on a hill back of buildings 57 and 59 and dumped down 24 feet to the yard level. Then, as required for use, loaded in carts and hauled to the shops. A constant expense. Then there is danger from fire. It is now proposed to erect four steel cylinders 40 feet diameter by 50 feet high, through which will be a track for a car connecting to all the principal shops. Estimate, $43,000.

The communication between the yard and Vallejo is by means of a steam ferryboat, and a slip has been built out from the yard front for her accommodation. This slip interrupts the tide and causes eddies with consequent deposit of silt. It will be a very great improvement to the water front and save much trouble in dredging to cut the slip back so that none of it will project. Estimate, $80,000.

The appropriation now available will about complete the quay wall north of the ferry slip. An appropriation is now asked for continuing the wall south to the dry dock. Estimate, $40,000.

The boat shop is overcrowded, and it is desired to construct a shelter roof for boats between buildings Nos. 51 and 53. Estimate, $14,300.

Construction and repair is much in need of a shop for plumbers, tinners, and painters. Estimate, $22,500.

The oil house is not large enough to hold all the oils required at this supply yard. To extend it sufficiently the estimate is $8,600.

A bath house on piles at the edge of the tulé for the men and boys of the *Independence* and a wash house with a proper drying apparatus are essential to the health and comfort of the men on board. Estimates, $1,621 and $3,000.

A new wharf to the *Independence*. Estimate, $2,800.

For the improvement, extension, and repairs of sidewalks and roads. Estimate, $7,000.

Building No. 25, in "Dublin," now occupied by civil employees whose duties require their residence on the island, is very old, and really unfit for occupancy. It should be pulled down and in its place erected a suitable apartment house for eight families. Estimate, $10,000.

Many of the junior officers on duty at the yard have no quarters assigned them and can only secure them, at great expense to themselves and much inconvenience to the Government, over in Vallejo. They have no compensation allowed for quarters. Frequently have to rent them for a year or more and may be detached within a few months. A suitable apartment house should be erected for them. Estimate, $30,000.

The electric light plant is barely sufficient for the present needs but not sufficient to light the shops at night. There is no relief for the dynamos or engines in case of accident. To increase, the estimate is $15,000.

The yards and docks shop needs some additional tools, which would effect a great saving of expense. Estimate, $6,750.

Naval station, Puget Sound, Wash.—There should be an electric light plant at this station for lighting ships in dock, shops, and grounds about the dock. Estimate, $9,800.

The water system comprises a spring with pumping house from which the water is forced to the 400,000 gallon water tanks on top of the hill. A supply pipe leads from that to a little below the quarters; it is desired to extend it to the dock and new shops now under construction, also to supply ships at the wharf. Estimate, $4,007.

This station is absolutely cut off from all telegraphic communication except to Seattle, and from thence by boats a distance of about 14 miles. By putting in a line from the station to Port Blakely we can connect with the Postal Telegraph Company's wire, which is recommended. Estimate, $4,000.

Steam capstans are needed for the dry dock. Estimate, $6,325.

The bureau of steam engineering wishes a repair shop. Estimate, $66,000.

Some additional dredging is needed at the station. Estimate, $20,000.

To complete the fencing about the station $13,000 will be needed.

To continue stumping and clearing the ground, mainly as a precaution against forest fires, estimate, $6,000.

A scow with derrick for the delivery of supplies to and taking from ships is a great need. Estimate, $2,800.

A small oil house, $1,700.

Quay wall, $25,000.

Japonski Island, Sitka Harbor, Alaska.—Japonski Island, Sitka Harbor, Alaska, which was originally set apart for magazine and ordnance purposes, is now used almost exclusively as a coaling station. The wharf is much in need of extensive repairs. Five thousand dollars is asked for.

Housing torpedo boats.—When the torpedo boats now appropriated for shall have been completed there will be about twenty boats that should be hauled out of the water and protected from the weather, so that they may be at all times in perfect order for service. To enable the Bureau to do this, an appropriation is asked ($225,000), in order that suitable ways and sheds may be constructed at such yards or stations as may be decided upon.

The estimate for repairs and preservation is, as in last year's appropriation, $400,000.

The general maintenance, which covers many of the most pressing needs of the yards, has not been increased in proportion to the demands that are made upon it. It is earnestly recommended that this appropriation be increased this year to $300,000.

PRINCIPAL ITEMS OF WORK DONE DURING PAST YEAR.

During the year an effort has been made to keep the buildings, dry docks, wharves, etc., at the various navy-yards and stations in repair and prevent decay; but owing to the constant rearranging and changing necessitated by new tools and the demands of the construction departments at the yards, it is only by the closest economy that the appropriation is made to hold out.

Navy-yard, Portsmouth, N. H.—The old wooden floating dock has been thoroughly overhauled, caulked, coppered on sides, and generally repaired at considerable expense, so that it will be serviceable for some years to come for small vessels.

Extensive repairs have been made to the bridge leading from the yard to Kittery. It had become dangerous for teams to cross.

Other repairs necessary for the preservation of the yard buildings have been made.

Navy-yard, Boston, Mass.—Building No. 56, yard stable, has been remodeled and so fitted as to afford accommodation for the yard vehicles.

Two new boilers have been put in for the electric-lighting plant.

Numerous but much needed repairs have been made to the various yard buildings.

Navy-yard, New York.—Timber dry dock No. 3 being constructed under a contract with Messrs. T. & A. Walsh, dated May 8, 1895 (same being to complete a dry dock contracted for with John Gillies on November 17, 1892), the time for completion extended to January 4, 1897.

This contract was modified by agreement on June 12, 1896, to include wing and part of the quay walls at the entrance. On July 27, while flooding the dock in order to float the caisson in place, it was discovered that the 42-inch suction pipes were broken at each bend. After much delay an agreement was concluded November 30 for repairs and alterations. The time for completion of the dock being extended three months, the dock was completed within the time and tested with the monitor *Puritan*, of 6,060 tons, 289 feet long, 60 feet beam. She was docked once at each end and the dock finally accepted April 7, 1897. The battle ship *Massachusetts* was placed in the dock April 12. Up to the evening of May 7 the leakage was remarkably small for a wooden dock. The drainage pump, working for thirty minutes morning and evening, kept it free. On the morning of the 8th of May the leaks began to increase and they extended up the altars on the east side, but during the night of the 8th the leaks appeared on the west side.

On May 12 dry dock No. 2 began to leak freely on its eastern side.

The *Massachusetts* was undocked at 2 p. m. of the 10th and the dock left full of water. May 13 the Bureau asked that Congress might be requested to appropriate $100,000 for the repairs, to be immediately available.

On the 13th a board composed of our most experienced civil engineers met at the yard to make a careful investigation and report. On the 21st they reported that the leak was caused by the removal of some of the sheet piles of the cut-off at the outer end of the apron by the dredges while clearing the entrance to the dock. The hole was funnel shaped and extended below the bottom of the concrete under the floor of the apron. The bottom of the entrance was found to be a fine mica sand mixed with very fine blue soft mud, "which," they state, "is fully as dangerous as pure quicksand, and which is known to underlie the ground in the Wallabout Basin."

The water has worked a passage under the concrete of the apron, and probably from there out laterally to the side sheet piling and thence up to the side of the dock. The board recommended grouting the cavity, sheet piling the front, and planking the top of the apron, thus closing the hole, and then filling behind the altars. The estimate was $29.313.

But after consultation the Bureau decided to recommend a cofferdam, to be constructed so that the full extent of the undermining could be definitely determined and corrected. One hundred thousand dollars was appropriated by Congress and approved June 26, 1897. The cofferdam is now under construction.

The quay wall at the foot of Main street was finished January 5, 1897.

The quay wall in Whitney Basin has been extended 591 feet by Messrs. Benner & Opdyke, so that this year's appropriation will complete the eastern wall to connect with the wall of the causeway. P. Sanford Ross is making excellent progress with 458 feet of quay wall at the old coal wharf. Building No. 44, shipwrights' shed, has been completed, as also repairs and alterations to equipment paint shop.

Messrs. T. & A. Walsh have completed the foundations for the 40-ton traveling crane around dry dock No. 3; also the wing and part of the quay walls at entrance of the dock.

Crane tracks have been extended from dry dock No. 2 to the steam engineering boiler shop.

The caisson of dry dock No. 2 had loose stone ballast, which caused a great deal of trouble in cleaning. So it was decided to substitute concrete for the stone. In effecting this about all the stone was removed from the caisson before putting in the concrete. About 8 p. m. August 8, 1896, the caisson being in place and the dock pumped out, the caisson jumped from its seat, doing much damage to the caisson, which was sunk, cut through a number of altars of the dock, damaged the torpedo boat *Ericsson* and barge, which were sunk; also, sinking a float with appliances belonging to Mr. Walsh, the contractor for dry dock No. 3.

Grading and paving: 5,435 square yards of paving laid, 3,700 feet of curbing, and 1,400 linear feet of flagging were put in.

June 21, 1897, a fire occurred in building No. 13, the ordnance, machine, and joiner shop. Origin of fire unknown. The roof and second floor were ruined. Much valuable ordnance material was in the building at the time and was somewhat injured. An appropriation of $20,000 was made for restoring the building. It will be rebuilt with fireproof floors and steel roof trusses.

Navy yard, League Island, Pa.—The artesian well which was commenced the previous year was drilled to a depth of 595 feet, when good potable water suitable for all yard purposes was reached. The quantity being ample for present needs, the Bureau decided to stop the drilling for fear we might get water not so good. The tower and pump house have been completed.

Seven thousand seven hundred and forty-six square feet of concrete sidewalks have been laid.

Lightning rods were erected for commandant's office, houses A, B, C, No. 104, and yard stables.

A berth was dredged for the U. S. S. *Brooklyn* on west side of the west dry dock pier, and is still progressing along the east side of the east dry dock pier. Contract was prepared and signed July 1, 1897, for dredging about 1,250,000 cubic yards from the proposed reserve basin in the back channel and pumping it over onto the west end of the island.

The 100-ton shear legs have been erected, but not accepted yet, as the operating mechanism has been found to be too weak.

A 10-ton crane has been erected on the quay wall.

The east dry dock pier has been completed and the new water-closets contracted for.

The retaining wall around the west end of the island has been kept in repair.

The boilers at the dry dock having settled, owing to the rotting of the piles upon which they were founded, have been repaired.

The water-supply system has been largely extended and fire hydrants put in.

Navy-yard, Washington, D. C.—The west wall of the yard has been completed to low-water mark. New steel trussed roof has been put on the foundry and the walls repaired. A new steel-trussed roof has been put on the quadrangle building, making it practically fireproof. The alterations to the north end of the west side of the quadrangle building have progressed to near completion.

A new building for paint shop and inflammable material has been erected.

At 1.20 p. m. April 22, 1897, fire was discovered in storehouse No. 2, and immediately the whole upper floor was in flames. The second and third floors and roof were ruined. It will be rebuilt with a steel-trussed roof.

At 4.10 p. m. April 29, the old rigging loft, which had been fitted up for seamen gunners' quarters, but then occupied temporarily by the general storekeeper's offices, was found to be on fire under the old wooden roof. The fire spread with great rapidity, and about two-thirds of the roof was destroyed. It has been temporarily repaired.

These fires, one week apart, are supposed to have been of incendiary origin, but a careful investigation in each case has failed to discover the incendiary. At both fires the city fire department was very prompt in responding to call and rendered most efficient service.

Navy-yard, Norfolk, Va.—Two water tube boilers have been put in place for the electric light plant.

One sand lighter and a deck scow have been completed.

Good progress has been made on the extension of quay wall running south toward the marine railway. Two hundred and forty-nine foundation piles were driven and cut off at proper level 28 feet below coping, 1,158 cubic yards of concrete put in place, 140 linear feet of wall finished, and for a distance of 92 feet the foundation piling completed and a concrete wall 9 feet high built thereon. This wall will be completed to the building slip under the appropriation for 1898.

Quay wall north of timber basin: Good progress has been made; 150 linear feet of old wooden wharf removed and the piles pulled up; 4,500 yards of mud excavated to make room for the wall; 430 foundation piles driven and cut off 28 feet below coping level. On these pile foundations have been landed and set in place three blocks of concrete, each 27 feet long, 21 feet wide at base, and 8 feet wide at low-water mark. One thousand and fifty-six cubic yards of concrete and 300 cubic yards of large stone are in the blocks. A space of 8 feet has been left between the blocks. These are being filled in with smaller blocks.

Many yard buildings have been painted, roofs, gutters, and drains repaired.

The wing approaches to and outer sills of the wooden dry dock which had been completely destroyed by teredoes have been repaired—new oak sills covered with steel Z-bars and the wing walls covered with two layers yellow pine, two layers of felt, and over all three-sixteenths inch sheet iron. The north abutment has been repaired from coping to 8 feet below with new timber and concrete in mass.

Caissons for both docks have been scraped and painted.

Ship joiners' and boat shop have been equipped with electric lights. The boiler and machine shops have been partly equipped.

Naval station, Port Royal, S. C.—Construction and repair shops: The main building, which has a steel frame and roof trusses, with brick walls, was completed February 3, 1897. The annex is now in course of construction. The general storehouse was completed in June. Both of these buildings were erected by L. P. Hazen & Co.

The artesian well has been driven to 966 feet, with a 6-inch pipe. No water as yet.

But little dredging has been done, and that around the dock entrance, owing to the delay in procuring condemnation of land adjoining station, which it is desired to purchase and raise to grade.

Naval station, Key West, Fla.—The sea wall from the machine shop to the marine hospital is in course of construction and will be completed under the present appropriation. Nothing but the back filling now to be done.

Navy-yard, Pensacola, Fla.—Only such repairs as are absolutely needed to preserve property have been made.

Navy-yard, Mare Island, Cal.—A new steel caisson has been built at the yard by the construction and repair department. It is practically finished.

Ship fitters' and storage sheds for construction and repair are in course of construction. They were much delayed by changes in plans.

Grading and paving around the dry dock is progressing. Sidewalks and roads have been repaired, extended, and improved. A sewer has been laid through "Dublin" and all the buildings connected.

A new 6-inch water main has been put down across the straits to Vallejo, but not properly connected yet. When connected, we will have two connections between the yard and its water supply.

A temporary wharf was built south of the dry dock to berth the *Pensacola* and *Mohican*. The entrance to the dry dock and in front of the temporary wharf has been dredged.

Naval station, Puget Sound, Wash.—The dry dock constructed under contract with Messrs. Byron Barlow & Co., having already been tested with the *Monterey*, was completed in accordance with the requirements of the testing board and finally accepted in September, 1896. Its dimensions are as follows: Length over all, 675 feet; length on blocks, 624 feet; width of entrance at top, 92 feet 8 inches; bottom of entrance, "inverted arch;" depth over sill at mean high water, 30 feet. Total contract price to completion, $608,812.31.

The battle ship *Oregon* has been successfully docked there. Although careful examinations were made before, during, and after the docking, not the slightest sign of weakness was developed.

A small tract of land, upon which is a spring of most excellent water, has been purchased and a spring house with pumping plant installed, with water mains leading to the two steel reservoir tanks on top of the hill back of the quarters. These tanks have an aggregate capacity of 400,000 gallons.

A construction and repair shop 328 by 68 feet, with steel frame and roof and brick walls, and a store 121 by 60 feet of brick, with steel roof and joists, are in process of construction under a contract with the Penn Bridge Company.

The work of clearing the station as a precaution against fire has progressed favorably.

NAVAL HOME, PHILADELPHIA, PA.

The following table shows the changes among the beneficiaries during the fiscal year ending June 30, 1897:

On rolls July 1, 1896		214
Original admissions during year		23
Readmissions		5
Total		242
Died	15	
Discharged	7	
Transferred	3	
Dropped	5	
Dismissed	3	
		33
Total on rolls July 1, 1897		209

Capt. J. C. Watson, U. S. N., the governor of the Home, has done much to improve the condition not only of the beneficiaries but of the buildings and grounds.

The estimates show a decrease of $2.000 for the support of beneficiaries and an increase of $1,000 for repairs to building. The approval of this is earnestly recommended.

The experiment of filling the positions of steward and master at arms from beneficiaries has proved successful, and should be continued for all vacancies for which they are found qualified.

Two hundred and one new books have been purchased for the library, 51 of which are to replace those worn out, soiled, and illegible.

The kitchen has been entirely remodeled and a new range put in. Sheds for hose cart, etc., erected. New carpenter shop built. Old shop converted into a paint shop. Electric lights substituted for gas. A ventilator and skylight has been put on the attic roof of the Home throughout its entire length, which makes a great improvement; as, strange as it may seem, many of the beneficiaries had at their own request been quartered in the small rooms in the attic.

A new elevator has been put in the Home building.

Nearly the whole of the inside of the building has been scraped and painted. A new power house and coal vault have been contracted for.

The following work should be undertaken as soon as the appropriations will permit: Four new sewer connections from main building; the ceiling of cellar should be plastered to prevent dampness on floors above; surface drainage put in; a new steaming house for mattresses, bedsteads, etc.; ventilation of toilets perfected; new fire hydrants put in the grounds; first floor of south corridor and mess hall renewed. These will probably be done this year.

ALIENATION OF PENSION FUND.

By section 3 of the act of Congress approved February 26, 1811, which was an amendment to "An act in addition to 'an act for the relief of sick and disabled seamen,'" (approved March 2, 1799), the "commissioners of navy hospitals" were directed, while selecting sites for navy hospitals and erecting suitable buildings for the same, that at one of the establishments so selected they were to provide a permanent asylum for disabled and decrepit navy officers, seamen, and marines.

Section 5 of the same act provides that "when an officer, seaman, or marine shall be admitted into a navy hospital, the institution shall be allowed one ration per day during his continuance therein, to be deducted * * *, and in like manner, when any officer, seaman, or marine entitled to a pension shall be admitted into a navy hospital, such pension, during his continuance therein, shall be paid to the commissioners of the navy hospitals," and deducted, etc.

At that time the "commissioners of navy hospitals" controlled the hospital fund, and from that fund as far as possible all the expenses of the navy hospitals (including what is now known as the Naval Home) were paid; thus showing that the pensions were stopped for the benefit of the fund from which the expenses of these institutions were paid.

An act "for the regulation of the Navy, and privateer pension and navy hospital funds," approved July 10, 1832, abolished the commissioners of the navy pension and navy hospital funds, and made the Secretary of the Navy the trustee of both these funds.

An act making appropriations for the naval service for the year ending June 30, 1870, approved March 1, 1869, "*Provided*, That this appropriation and all amounts hereafter appropriated for the support of the Naval Asylum (Home) at Philadelphia, the beneficiaries therein, the pay of officers, repairs, contingent and other expenses, shall be charged to and paid from the income of the naval pension fund."

Section 5 of the act approved February 26, 1811, shows that the pensions were paid to the fund from which the expenses of the asylum (Home) were paid.

The act of July 10, 1832, makes the Secretary of the Navy trustee of both pension and hospital funds.

The act of March 1, 1869, transfers the expenses of the asylum (Home) to the pension fund.

Section 4813, Revised Statutes, provides for the payment of the pension of a beneficiary to the Secretary of the Navy, who has become trustee of both funds.

Section 4756, Revised Statutes, *only* provides for the payment to men after twenty years' honorable service of a pension "in lieu of being provided with a home in the Naval Asylum." The law does not authorize this payment of half pay at any other time.

And section 4755 forbids any payments being made from the pension fund except upon appropriations authorized by Congress.

The pensions of the beneficiaries at the Naval Home have heretofore been stopped and paid to the naval-hospital fund, which is at no expense for their support while in the Home. The Bureau has the honor to represent that it considers this a wrongful and illegal "alienation" from the naval-pension fund of the half pay allowed (under section 4756, Rev. Stat.) to disabled seamen and marines, who have had twenty years of honorable service, "in lieu of being provided with a home in the Naval Home (Asylum)." When they enter the Home this half pay, instead of being stopped, as the Bureau thinks it should be, is turned over by the paymaster to the credit of the naval-hospital fund, which is at no expense whatever in the support of the beneficiaries while in the Home. The money thus alienated from the pension fund during the past year amounted to $17,678.63.

The number of continuous-service men has very greatly increased of late years, and we may in the near future expect greatly increased demands upon the pension fund under section 4756. The Bureau would therefore suggest that the Department take such steps as it may deem necessary to stop the alienation above referred to.

CONSTRUCTION OF DRY DOCKS.

In regard to the construction of dry docks for the future, the Bureau would most earnestly recommend that they be constructed of concrete, with stone facings to abutments and altars. The dimensions should be about as follows: Length of floor, 650 feet; width of entrance, 95 feet; depth over sill at mean low water, 30 feet; floor of dock to be 4 feet below sill.

The section of entrance should be shaped like the greatest cross section of a battle ship. In soft or uneven bottom piling may be necessary under the structure, but in that position the piling would last for all time. This makes a solid mass, entirely independent of all outside conditions.

The opponents of this mode of construction have said a great deal of the expense of the dry docks at New York and Mare Island, the first of which was ten years under construction and the second nineteen years.

The New York dock, like those at Boston and Norfolk, was built with stone rubble laid in hydraulic (Rosendale) cement and faced with cut stone laid in the same kind of cement. This cement is not durable under water, and such joints soon become leaky. When these cement joints, exposed to the winter frosts, become wet, they soon go to pieces. This has been the cause of about all the repairs to these docks.

The Mare Island dock, which was built of concrete and faced with stone, has caused no trouble in the way of repairs. Some alterations have been made in fitting bilge keelways for the comparatively flat bottoms of some of our new ships. There is practically no leakage.

Our experience with wooden docks only dates from 1889. Two of those built by Simpson & Co., one at League Island, the other at Norfolk, are now under repairs. The heads of piles around the docks having rotted badly down to the permanent wet level.

The dock at League Island had some of its lower altars burst off while the battleship *Massachusetts* was in it. There has also been a slight movement of the abutment inward. From a spring at the head this dock leaks, when pumped out, at the rate of 1,300 gallons per minute, so that the drainage pump has to be kept going. The sides are dry. The Norfolk dock has had the outer gate seat and part of the abutment eaten away by the teredo.

Our experience with these docks is not such as to lead the Bureau to recommend any more of them.

Floating docks of steel have met with some favor abroad for certain cases. We have had none but wooden ones, which were very expensive for maintenance.

A steel floating dock, fitted with gates for use with the heavier ships, would be of great service at either Key West, Tortugas, or Algiers, La.

SUPPLY OF POWER FOR NAVY YARDS AND STATIONS.

At present the necessary power at the yards is supplied from a number of boilers and engines distributed at various points, resulting in a wasteful expenditure of labor, plant, and fuel. It is thought that the time has arrived when we may properly turn our attention to a central boiler plant, engine and dynamos, and electrical distribution of power. By undertaking this substitution, in a small way at first and gradually extending, it may be done with but a light additional expense each year, and in a short time the savings in labor and fuel should pay for the changes. (See Report of Prof. O. G. Dodge, U. S. N., appended to this report.)

A statement of the amount expended under each specific head of appropriation during the fiscal year 1897 and the balance remaining unexpended, as required by law, is appended.

An abstract of offers for special objects of improvement and supplies coming under the cognizance of this Bureau is made, in conformity to act of March 3, 1843.

Also a report showing the amount expended during the fiscal year 1897 from appropriations pertaining to this Bureau for civilians employed on clerical duty or in any other capacity than as mechanics and workingmen at various yards and stations, with estimates for the fiscal year 1899, in accordance with law.

Very respectfully, your obedient servant,

E. O. Matthews,
Chief of Bureau Yards and Docks.

The Secretary of the Navy.

DEPARTMENT OF THE NAVY,
BUREAU OF YARDS AND DOCKS,
Washington, D. C., October 4, 1897.

SIR: I have the honor to ask your consideration of the subject of the installation in the navy-yards of central stations for the generation of electric power to be distributed to the various shops for the operation of all machinery.

The economy in operation resulting from centralizing or uniting all the plants is, I think, obvious to any person who has given the subject consideration. The distribution of the power electrically can be done with a negligible loss.

The economy to be effected results from various stages in the process of converting the potential energy of coal into mechanical work in the machinery.

(*a*) *Boilers.*—At present each department has one or more boiler plants, each plant requiring one or more firemen. The demands are generally below the capacity of the boilers and the coal consumption high for the power utilized. If the total demand for steam for all engines could be brought to one point it would only be necessary to operate a sufficient number of boilers to supply it, the boilers then running under the proper conditions for coal economy. The number of firemen necessary would be materially reduced. Stopping at this point would involve the distribution of steam over long distances an uneconomical operation.

(*b*) *Engines.*—Practically each shop has its own engine, a simple noncondensing one, and frequently of an old type. The engines run continuously on a partial load, a condition which, taken in connection with the type of engine, results in a large steam consumption for the amount of power realized. Each engine has its engineer. Suppose that this demand for power could be brought to one point, we could then operate a large, efficient, compound condensing engine, with a very large economy in the use of steam. But one, or at most two, engineers would be necessary.

(*c*) *Shafting.*—In all shops long lines of shafting are run continuously, whether the complement of men is large or small. The load of this shafting is from 25 to 50 per cent of the capacity of the engine driving it, and it frequently constitutes the greater part of the load on the engines. If electric motors were installed in the shops the amount of shafting could be very much reduced, and only such parts of what remained as were necessary for the time being would be operated. All large machinery should be operated by individual motors, and the small machinery grouped on 7½ to 10 horsepower motors.

(*d*) In any system of power distribution a certain percentage of the load on the engines is a waste load—that is, it is not utilized in the machinery driven by the engine. In a distributing system of belts and shafting this waste load is continuous, without regard to the amount of machinery in operation. As the machinery is stopped the percentage of waste load continually increases. In a system of electrical distribution of power, whenever a machine is stopped its proportion of the waste load is cut out, and the waste power remains a nearly fixed percentage of the power utilized. An example will render this clear: Suppose we have a 1,000-horsepower plant in which 80 per cent of the power is realized in the machinery when it is all in operation—that is, 800 horsepower is useful energy and 200 horsepower is waste, belts and shafting. If now, due to a reduction of the force of men or other causes, three-fourths of the machinery is shut down, 200 horsepower will be utilized in the machines, and the 200 horsepower of waste in the belts and shafting will remain about the same, increasing the percentage of waste load to 50. In an electric system, if the useful load is reduced to 200 horsepower the waste load decreases in the same ratio, and will now be 50 horsepower, or 20 per cent of the total, as before. When we consider the fact that the number of employees in the navy-yard shops is continually changing, and that even with a fixed number the machinery is continually stopping and starting, it will be seen that this one item has a decided bearing on the economy of operation.

By the installation of a modern power plant composed of (1) economical boilers with good coal and ash handling facilities, (2) compound condensing engines of a size to supply the average demands, and (3) electric generators of an economical type, combined with a proper distributing system and motors for the machinery, economy will result from the following causes:

(*a*) A larger percentage of the power supplied to the shops will be utilized in driving the machinery.

(*b*) This power will be obtained from engines operating more economically.

(*d*) The reduced steam consumption resulting from the above causes will be supplied from boilers operated under more economical conditions.

(*c*) The number of employees connected with the present power, light, and heating plants can be very much reduced.

Practical experience has not only demonstrated that power supplied in the form of electrical energy is the most flexible, convenient, and reliable, but that it is also the cheapest. The result is most noticeable in American street railways, in which 13,580 miles, in a total of 15,250 miles, is operated electrically. Many private establishments have found that the saving in operating expenses was sufficient to warrant the large expenditure necessary in discarding their old plants and installing new electric plants. In establishing new plants no other system should be adopted.

In connection with the establishment of new plants, I wish to call your attention to the naval stations at Port Royal and Port Orchard. A small electric plant at each of these stations, installed with the pumping plants, could supply power to the present shops. It could be operated by the same employees, now on the rolls, who operate the pumping plants. A storage battery, charged during the working hours of the day, could be used to furnish light for the shops and quarters at night at very little additional cost.

The above is also true of the navy-yard at League Island, Pa. By enlarging the present small plant, power could be supplied to the shops, and the lights already installed could be operated. The cost of supplying both power and light would be less than the present cost of supplying power alone. The necessity for supplying light to the ships in reserve at this yard, to the receiving ship, and for police purposes in the grounds, is imperative. It is probable that repair shops will be installed in the vicinity of the new basin. This machinery should be driven by electric power, as the demand will be irregular. If a steam plant is installed it will result in the permanent employment of the necessary engineers and firemen, thus adding to the already unnecessary number. If power is taken from the electric station no increase of employees over that necessary in running the plant in the first instance will be necessary. The increase of coal consumption in the electric station would be less than the coal consumption in the shop plant.

In accordance with your instructions, about a year since I made a careful investigation and estimate in regard to the supply of electric power in the navy-yard at Norfolk, Va. The results are based entirely on known data, and are not theoretical conclusions. These results show that at least $12,000 per year, about 50 per cent of the present cost of power, heat, and light, can be saved by substituting a central electric power station for the present scattered plants.

In the navy-yard, Washington, D. C., in which the most economical steam plant of any of the yards is installed, a large economy is possible by the substitution of electric power. In a careful investigation of one shop, made by running each machine and the shafting with an electric motor, and measuring the power used, it was found that the power wasted in driving the shafting was ample to run the machinery, if applied direct by means of electric motors.

A purely hypothetical case will perhaps best illustrate the gain to be made in centralizing the plants. Suppose we had one large shop containing ten large machines, or groups of machines, running intermittently; that some machines or groups required 50 horsepower, others 75 horsepower, others 100 horsepower, and so on, would any engineer install a separate boiler and engine, with their attendant firemen and engineers, for each machine or group? I think not. They would bank their boilers, reduce the number of firemen, and operate enough boilers to supply the average demand. They would install one or perhaps two large economical engines and correspondingly reduce the number of engineers. Now, suppose these machines to be scattered over a wider territory. In what way does it affect the result? Simply this, it renders transmission of power by belts or ropes uneconomical, necessitating separate engines; it renders steam distribution to these engines from one boiler plant uneconomical, owing to the condensation in long runs of steam piping, and necessitates scattering the boilers. Herein lies the essential difference between the present plants and an electric one. It makes no difference in the distribution of electric power whether the machines to be operated are bunched in one building or scattered over an area larger than any of the navy-yards. We can generate the power in one place and distribute it. The loss in distribution can be made as small as we wish. The demands for power in the various shops are added together at the switchboard, and we run only a sufficient number of engines and boilers to supply the aggregate demand. This enables us to employ the minimum number of engineers and firemen, and reduces the coal consumption to a minimum. Whenever the force of employees in the shops is reduced, the reduced demand for power is immediately shown in the power station, and the operating expenses are correspondingly reduced.

Very respectfully,

O. G. DODGE,
Professor, United States Navy.

CHIEF OF BUREAU YARDS AND DOCKS.

No. 1.—*Report of expenditures at navy-yards, stations, and Naval Home for the year ending June 30, 1897.*

Yards and stations.	Appropriations.					
	Yard improvements.	Repairs and preservation.	General maintenance.	Civil establishment.	Contingent.	Total.
Portsmouth, N. H	$219.00	$30,076.44	$18,740.08	$5,878.00	....	$54,913.52
Boston, Mass	9,025.42	24,845.19	29,860.05	6,412.12	....	70,142.78
New London, Conn	....	685.35	5,862.68	....	....	6,548.03
New York, N. Y	278,043.08	150,212.96	53,474.58	13,405.85	$11,220.91	506,357.38
League Island, Pa	23,948.31	18,565.13	11,272.55	4,253.94	....	58,039.93
Washington, D. C	83,163.24	29,790.73	19,170.20	4,478.00	1,030.36	137,632.53
Norfolk, Va	51,118.19	52,852.54	42,482.83	8,558.53	....	155,012.09
Pensacola, Fla	....	8,907.87	10,625.91	1,930.00	3,151.16	24,614.94
Mare Island, Cal	90,370.34	58,464.53	54,945.03	12,178.90	....	215,953.80
Sacketts Harbor, N. Y	....	301.78	....	365.00	....	666.78
Key West, Fla	....	4,594.21	2,381.01	600.00	....	7,575.22
Naval Home, Pennsylvania	77,638.52	....	....	....	....	77,638.52
Wharf at Erie, Pa	....	....	....	....	....	....
Port Royal, S. C	69,965.48	8,089.58	5,214.98	....	139.99	83,410.03
Puget Sound	62,836.75	11,189.15	13,849.97	....	....	87,875.87
Total	746,328.33	398,575.46	267,879.87	58,055.34	15,542.42	1,486,371.42

No. 2.—*Detailed report from navy-yards and stations of expenditures under "Repairs and Preservation" during the fiscal year ending June 30, 1897.*

Objects.	Portsmouth.	Boston.	New London.	New York.	League Island.	Washington.	Norfolk.
Yard buildings	$1,759.75	$7,358.61	$236.50	$66,648.67	$3,707.85	$13,851.51	$9,732.68
Officers' quarters	2,871.09	4,196.76	141.71	6,634.08	1,387.90	2,659.27	3,010.09
Wharves, bridges, landings, and boats	6,702.48	16.00	24.98	7,172.85	254.23	16.32	2,225.69
Roads, walks, gutters, and drains	2,248.69	2,822.62	126.31	1,848.08	3,099.12	2,883.22	3,408.70
Fences and walls	96.88	24.91	3.57	1,633.46	85.50	276.58	1,409.85
Cranes, scows, and derricks	94.42	....	....	4,469.91	124.56	....	964.94
Furnaces, forges, heating apparatus, etc	587.94	734.84	....	5,203.35	826.91	2,786.85	6,071.01
Tracks and scales	....	243.81	....	7,805.03	10.00	1,427.27	2,325.06
Water and gas works and electric lights	1,153.94	2,237.09	....	15,158.80	2,063.96	608.02	7,325.12
Dredging and scowing	....	....	....	18,384.00	198.77	3,550.68	587.65
Dry docks	10,416.46	806.75	....	2,133.28	556.08	....	14,733.53
Miscellaneous repairs	4,144.79	4,343.22	152.28	10,891.06	3,950.17	1,087.76	1,058.22
Repairs to dikes	....	....	....	2,280.39	692.22	....	....
Coal	....	2,059.58	....	....	1,593.36	294.64	....
Telepohne equipping	....	....	....	....	....	....	....
National holiday	....	....	....	....	....	348.66	....
Total	30,076.44	24,844.19	685.35	150,212.96	18,565.13	29,790.73	52,852.54

Objects.	Pensacola.	Mare Island.	Key West.	Sacketts Harbor.	Port Royal.	Puget Sound.	Total.
Yard buildings	$2,982.70	$14,387.21	....	$301.78	$1,667.28	$312.65	$122,946.69
Officers' quarters	1,891.40	4,412.20	$78.38	....	2,017.09	401.66	29,701.63
Wharves, bridges, landings, and boats	719.41	10,740.14	197.80	....	277.08	785.27	29,132.25
Roads, walks, gutters, and drains	691.52	2,327.51	....	....	142.74	1,627.42	21,225.93
Fences and walls	1,307.23	317.44	2,950.00	....	137.70	3.00	8,246.12
Cranes, scows, and derricks	....	702.16	....	....	....	....	6,355.99
Furnaces, forges, heating apparatus, etc	149.05	1,233.54	....	....	82.06	....	17,675.55
Tracks and scales	226.64	32.32	....	....	....	6.50	12,076.63
Water and gas works and electric lights	35.72	8,847.55	....	....	834.74	1,468.58	39,753.52
Dredging and scowing	....	742.40	....	....	21.90	....	23,430.35
Dry docks	13.36	1,509.62	....	....	2,271.77	1,126.64	33,567.49
Miscellaneous repairs	719.88	7,473.49	1,368.03	....	629.47	5,344.43	41,162.80
Repairs to dikes	....	....	....	....	....	....	2,972.61
Coal	....	3,674.23	....	....	....	113.00	7,734.81
Telephone equipping	....	2,064.72	....	....	7.75	....	2,072.47
National holiday	170.96	....	....	....	....	....	519.62
Total	8,907.87	58,464.53	4,594.21	301.78	8,089.58	11,189.15	398,574.46

No. 3.—*Detailed report of expenditures under "General maintenance" received from yards and stations during the fiscal year ending June 30, 1897.*

Objects.	Portsmouth.	Boston.	New London.	New York.	League Island.	Washington.	Norfolk.
Freight and transportation		$10.00		$41.00		$61.00	
Printing, stationery, and advertising	$23.84	187.76	$104.58	1,108.27	$232.29	489.28	$296.93
Books, maps, models, and drawings	19.36	204.65			10.50	5.00	42.20
Purchase and repair of fire engines	389.72	34.60					6,326.98
Machinery of every description and patent rights	244.78	1,246.72		3,236.48	4.15	142.00	1,517.08
Repairs on steam engines and attendance on same				69.44			14.76
Purchase and maintenance of oxen and horses, pay of hired teams, etc	3,297.13	3,654.32	896.00	8,524.37	5,187.33	3,099.14	3,825.74
Carts, timber wheels, and tools of every description	80.55	1,178.32	26.23	1,411.17	1.00	907.05	1,486.19
Postage on letters on public service and telegrams and telephone		121.27	60.00	11.74		116.27	
Furniture for Government houses and offices in navy-yards	168.37	681.96	171.20	820.30	88.95	1,614.04	1,685.91
Coal and other fuel, electric lighting	3,891.79	10,465.27	42.24	4,134.44	965.34	7,025.93	7,514.07
Candles, oil, and gas			22.54				
Cleaning and clearing up yards and care of buildings	2,259.11	2,067.57	1,481.18	8,840.78	697.87	4,270.38	6,161.57
Attendance on fires, lights, fire engines, and apparatus	2,427.64	1,277.00		6,857.64	2,425.96		1,095.00
Incidental labor, not chargeable to other appropriations	1,940.88	228.00	740.01	2,901.11	9.92	940.52	564.70
Water tax, ice, tolls, and ferriage		4,893.64		7,933.58	62.80		417.70
Tolls and ferriage	5.00		25.00				
Pay of watchmen	3,933.40	3,528.25	2,190.00	7,090.62	1,460.00		11,534.00
Flags, awnings, and packing boxes	58.51	80.72	3.60	433.14	126.44	227.33	
Rent of landings			100.00				
Rent of officers' quarters, Philadelphia, Pa					2,799.99		
Holiday						272.26	
Total	18,740.08	29,860.05	5,862.68	53,474.58	14,072.54	19,170.20	42,482.83

Objects.	Pensacola.	Mare Island.	Key West.	Sacketts Harbor.	Port Royal.	Puget Sound.	Total.
Freight and transportation		$2,332.42	$30.80			$12.38	$2,487.60
Printing, stationery, and advertising	$53.12	309.97	59.89		$199.70	497.58	3,563.21
Books, maps, models, and drawings		3.24			25.65	39.35	349.95
Purchase and repair of fire engines	689.84	648.37	651.00		19.58	72.00	8,832.09
Machinery of every description and patent rights	159.13	122.72			32.85	25.20	6,731.11
Repairs on steam engines and attendance on same		101.80					186.00
Purchase and maintenance of oxen and horses, pay of hired teams, etc	1,433.45	8,315.71			823.92	725.69	39,782.80
Carts, timber wheels, and tools of every description	180.54	831.52	78.00			525.15	6,705.72
Postage on letters on public service and telegrams, and telephone		1,321.05	60.00		199.43	1.20	1,890.96
Furniture for Government houses and offices in navy-yards	434.43	1,644.09	8.00		278.44	5,448.91	13,045.10
Coal and other fuel, electric lighting		17,343.10			659.70	228.00	53,093.36
Candles, oil, and gas	210.04		39.25			491.55	
Cleaning and clearing up yards and care of buildings	342.97	7,172.58			820.83	65.40	34,380.24
Attendance on fires, lights, fireengines, and apparatus	1,354.64	1,882.00			430.56		17,750.44

No. 3.—*Detailed report of expenditures under "General maintenance" received from yards and stations during the fiscal year ending June 30, 1897*—Continued.

Objects.	Pensacola.	Mare Island.	Key West.	Sacketts Harbor.	Port Royal.	Puget Sound.	Total.
Incidental labor, not chargeable to other appropriations	$78.96	$2,578.14	....	....	$562.50	$5,462.56	$16,007.30
Water tax, ice tolls, and ferriage	114.39	8,086.78	$36.00	....	1,046.06	255.00	22,845.95
Tolls and ferriage	60.00	....	....	....	....	....	90.00
Pay of watchmen	5,314.40	2,182.10	1,395.00	....	....	....	38,627.77
Flags, awnings, and packing boxes	....	69.44	23.07	....	115.76	....	1,138.01
Rent of landings	....	....	....	....	....	....	100.00
Rent of officers' quarters, Philadelphia, Pa	....	....	....	....	....	....	2,799.99
Holiday	....	....	....	....	....	....	272.26
Total	10,625.91	54,945.03	2,381.01	....	5,214.98	13,849.97	270,679.86

No. 4.—*Estimates received from navy-yards, stations, and Naval Home for fiscal year ending June 30, 1899.*

Yards and stations.	Appropriations.				
	Yard improvements.	Repairs and preservation.	General maintenance.	Civil establishment.	Total.
Portsmouth, N. H	$210,000.00	$23,025.00	$21,706.00	$5,885.00	$260,616.00
Boston, Mass	15,000.00	32,100.00	32,500.00	8,624.25	88,224.25
New London, Conn	....	1,450.00	6,258.00	....	7,708.00
New York, N. Y	647,800.00	190,000.00	87,300.00	28,350.38	953,450.38
League Island, Pa	1,950,116.83	28,831.37	10,543.78	7,000.00	1,996,491.98
Washington, D. C	80,450.00	35,000.00	23,000.00	5,495.25	143,945.25
Norfolk, Va	1,986,856.00	122,250.00	65,164.00	14,455.25	2,188,725.25
Pensacola, Fla	....	44,006.74	20,940.24	2,486.32	67,433.30
Mare Island, Cal	2,630,191.00	77,800.00	73,200.00	21,507.38	2,802,698.38
Sacketts Harbor, N. Y	....	100.00	....	365.00	465.00
Key West, Fla	4,900.00	2,588.80	1,687.00	600.00	9,775.80
Naval Home, Pennsylvania	77,725.00	....	....	....	77,725.00
Port Royal, S. C	950,464.75	11,175.00	10,300.00	9,979.38	981,919.13
Puget Sound, California	315,303.29	13,500.00	16,680.00	3,407.40	348,890.69
Total	8,868,806.87	581,826.91	369,279.02	108,155.61	9,928,068.41

No. 5.—*Detailed estimates from yards and stations for works of improvement for the fiscal year ending June 30, 1899.*

Yard, station, and object.	Estimates.	Total.
PORTSMOUTH, N. H.		
Commencing dry dock	$200,000.00	
Building to replace old hospital, No. 28	4,000.00	
Coal shed on Seaveys Island	6,000.00	
		$210,000.00
BOSTON, MASS.		
Reconstruction of wharf No. 4		15,000.00
BROOKLYN, N. Y.		
Dredging Whitney Basin and Wallabout Channel	186,000.00	
Berthing piers	30,000.00	
Quay wall between granite dry dock No. 1 and Main street	60,000.00	
Quay wall, coal dock, to complete	30,000.00	
Sands street gate house, to complete	40,000.00	
Grading and sewering between dry docks and Clinton avenue	18,000.00	
Grading and paving causeway, street along yard wall and Sixth street	42,000.00	
Paving streets now open	10,000.00	
Workshop, yards and docks department	60,000.00	
Erecting shop wing, building No. 28	65,000.00	
Addition to electric-light plant	25,000.00	
House for yard and docks electrician	5,000.00	
Sidewalks and side yard wall	13,000.00	
Steel storehouse	17,500.00	
Oil and varnish storehouse	46,300.00	
		647,800.00

No. 5.—*Detailed estimates from yards and stations, etc.*—Continued.

Yard, station, and object.	Estimates.	Total.
LEAGUE ISLAND, PA.		
New dry dock	$744,107.00	
Mooring vessels in reserve basin	86,163.00	
Dredging and filling in water front of yard	54,429.00	
Extension of reserve basin	257,073.96	
Continuation of west wall of causeway	72,260.00	
Roads and walks to reserve basin and about yard	20,204.50	
Drainage system for yard	6,687.36	
Storehouse for heavy articles	27,041.00	
Steam generators for heating purposes and electric plant	5,500.00	
Covered and ash lighters	9,000.00	
Pier from eastern end of sea wall east of Broad street	120,000.00	
Continuation of sea wall	20,000.00	
Railroad track	8,046.01	
Officers' quarters	35,000.00	
Traveling crane about dry dock	65,000.00	
Commandant's office	53,735.00	
Wing for steam-engineering shop	213,000.00	
Building slip	35,000.00	
Plate-bending shop	75,000.00	
Continuation light retaining wall	37,500.00	
New entrance to navy-yard	3,700.00	
Lightning rods	1,670.00	$1,950,116.83
WASHINGTON, D. C.		
Changing electric-light plant in yard	16,000.00	
Raising east wall of yard	4,103.00	
New storage house for guns	35,000.00	
New roof for south gun shop	25,347.00	80,450.00
NORFOLK, VA.		
Concrete and granite dry dock	1,200,000.00	
Fitting-out basin	264,000.00	
Enlargement of electric plant and concentration of steam power	80,000.00	
Ship fitters' shop	80,000.00	
Extension of quay wall north of timber basin	50,000.00	
Ship fitters' shop near dry dock	40,000.00	
100-ton floating derrick	70,000.00	
Garbage crematory	5,000.00	
Extending railroad track for traveling crane	13,000.00	
100-ton overhead traveling crane, track for the erecting shop, including foundations for columns and new roof trusses	30,000.00	
Steel standpipe, 270,000 gallons	13,000.00	
Grading and paving	20,000.00	
Grading, paving sidewalks, etc., Brown avenue, continued	6,467.00	
Grading, paving sidewalks, etc., Breeze street	15,389.00	1,986,856.00
PORT ROYAL, S. C.		
Extension of dry dock	390,846.51	
Quay wall	413,079.95	
Yards and docks building	54,200.23	
Power house installation of electric-lighting plant	19,051.58	
Gas plant	23,793.99	
Extension of roadway	14,765.62	
Fire-engine house	8,769.78	
Lighter, sand pump, boiler, etc., for dredging purposes	4,321.60	
Condensing plant	3,000.00	
Tarring dry dock	424.92	
Water lighter	1,800.00	
Ice plant	3,516.01	
Paint shop and storage for combustibles	12,894.56	950,464.75
KEY WEST, FLA.		
Concrete sidewalks	2,400.00	
Filling in behind sea wall	2,500.00	4,900.00
MARE ISLAND, CAL.		
Lumber storage shed, construction and repair, No. 1	28,000.00	
Lumber storage shed, construction and repair, No. 2	13,320.00	
Coal storage shed	57,000.00	
Coal cylinders	43,000.00	
Moving back ferry slip	80,000.00	
Gate and guardhouse	8,500.00	
Extension of freight shed	5,000.00	
Extending quay wall	40,000.00	
Shelter for boats	14,300.00	
Plumbers', tinners', and paint shop	22,500.00	
House for civil employees	10,000.00	
Apartment house for officers	30,000.00	
Bath house at U. S. R. S. Independence	1,621.00	
Washhouse and drying room U. S. R. S. Independence	3,000.00	
Wharf at U. S. R. S. Independence	2,800.00	
Extension of oil house	2,800.00	

No. 5.—*Detailed estimates from yards and stations, etc.*—Continued.

Yard, station, and object.	Estimates.	Total.
MARE ISLAND, CAL.—continued.		
New dry dock	$2,225,000.00	
Tools for machine shop	6,750.00	
Ice machine	3,000.00	
Sidewalks and roads	7,000.00	
Planking back of quay wall	3,000.00	
Bollards around dock	1,200.00	
Dredging sectional dock basin	3,600.00	$2,630,191.00
PUGET SOUND NAVAL STATION, BREMERTON, WASH.		
Electric-light plant	8,871.29	
Extension of water system	4,007.00	
Telegraphic communication	4,000.00	
Steam capstans for dry dock	6,325.00	
Improvement of water front	100,000.00	
Purchase of additional land adjoining springs	1,000.00	
Steam engineering shop	142,000.00	
Fence about station	13,800.00	
Continuing clearing, grading, and stumping station	6,000.00	
Additional officers' quarters	24,800.00	
Yard scow	2,800.00	
Oil house	1,700.00	315,303.29
Naval Home, Philadelphia, Pa., support of		77,725.00

No. 6.—*Detailed estimates from navy-yards and stations for "repairs and preservation" for the fiscal year ending June 30, 1899.*

Object.	Portsmouth.	Boston.	New London.	New York.	League Island.	Washington.	Norfolk.
Yard buildings	$8,000.00	$10,000.00	$250.00	$50,000.00	$15,199.79	$10,000.00	$64,250.00
Officers' quarters	1,000.00	2,500.00	250.00	8,000.00	488.75	4,000.00	6,000.00
Wharves, bridges, landings, and boats	3,000.00	1,000.00	500.00	10,000.00	4,801.00	300.00	8,500.00
Roads, walks, gutters and drains	2,000.00	7,500.00	100.00	5,000.00	4,200.65	4,000.00	8,000.00
Fences and walls	500.00	500.00	50.00	5,000.00	230.30	250.00	1,000.00
Cranes, scows, and derricks	2,000.00	100.00		12,000.00	699.80	300.00	3,500.00
Furnaces, forges, heating apparatus, etc	2,000.00	1,000.00	50.00	8,000.00	311.17	5,000.00	2,000.00
Tracks and scales	25.00	2,500.00		2,000.00		6,000.00	5,000.00
Water, gas, and electric-light works	2,000.00	500.00	50.00	15,000.00	1,200.00	3,500.00	11,000.00
Dredging and scowing		2,000.00					
Dry docks	1,000.00	1,500.00		50,000.00			10,000.00
Miscellaneous repairs	1,500.00	3,000.00	200.00	2,500.00	800.00	1,500.00	2,000.00
Dikes					899.91		
Coal							
Telephone service						150.00	1,000.00
Total	23,025.00	32,100.00	1,450.00	190,000.00	28,831.37	35,000.00	122,250.00

Object.	Pensacola.	Mare Island.	Sacket Harbor.	Key West.	Port Royal.	Puget Sound.	Total.
Yard buildings	$8,512.93	$30,000.00	$100.00	$892.00	$2,000.00	$500.00	$189,704.72
Officers' quarters	5,316.70	6,000.00			2,500.00	500.00	36,555.45
Wharves, bridges, landings, and boats	19,798.30	3,000.00			500.00	1,000.00	32,399.30
Roads, walks, gutters and drains	1,496.58	5,000.00			600.00	2,500.00	40,397.23
Fences and walls	793.55	1,000.00			300.00	100.00	9,723.85
Cranes, scows, and derricks	2,155.90	1,500.00			200.00	1,500.00	23,955.70
Furnaces, forges, heating apparatus, etc	476.27	2,000.00			300.00	500.00	21,637.44
Tracks and scales	837.86	500.00			100.00	100.00	17,062.86
Water, gas, and electric-light works	1,873.20	10,000.00			1,000.00	2,000.00	48,123.20
Dredging and scowing		1,000.00			1,000.00	2,500.00	6,500.00
Dry docks		3,000.00			1,600.00	800.00	67,900.00
Miscellaneous repairs	2,745.45	11,000.00		1,696.80	800.00	1,500.00	51,742.25
Dikes							899.91
Coal		800.00			200.00		1,000.00
Telephone service		3,000.00			75.00		4,225.00
Total	44,006.74	77,800.00	100.00	2,588.80	11,175.00	13,500.00	581,826.91

No. 7.—*Detailed estimate for "General maintenance" received from yards and stations for the fiscal year ending June 30, 1899.*

Object.	Portsmouth.	Boston.	New London.	New York.	League Island.	Washington.	Norfolk.
Freight and transportation	$25.00	$50.00	....	$250.00	....	$50.00	$100.00
Printing, stationery, and advertising	300.00	50.00	$50.00	1,500.00	$132.27	1,000.00	400.00
Books, maps, models, and drawings	50.00	1,000.00	....	3,000.00	10.50	25.00	1,000.00
Purchase and repair of fire engines	100.00	....	....	100.00	....	50.00	5,000.00
Machinery of every description and patent rights	50.00	1,000.00	100.00	7,500.00	....	150.00	5,000.00
Repairs on steam engines and attendance on same	....	....	....	8,000.00	....	25.00	4,000.00
Purchase and maintenance of oxen and horses, pay of hired teams, etc	4,000.00	4,000.00	1,100.00	15,000.00	4,876.33	5,000.00	5,000.00
Carts, timber wheels, and tools of every description	1,000.00	1,500.00	250.00	5,000.00	....	2,000.00	5,000.00
Postage on letters on public service and telegrams and telephones	106.00	200.00	125.00	250.00	62.80	150.00	30.00
Furniture for Government houses and offices in navy-yards	500.00	1,000.00	100.00	5,000.00	88.95	1,500.00	3,000.00
Coal and other fuel for yards and docks purposes	2,500.00	9,000.00	125.00	4,000.00	702.84	....	6,000.00
Candles, oil, gas, and electric lighting	1,500.00	....	25.00	1,000.00	....	5,000.00	6,000.00
Cleaning and clearing up yards and care of buildings	2,500.00	2,500.00	1,500.00	12,000.00	697.87	5,000.00	6,000.00
Attendance on fires, lights, fire engines, and apparatus	2,500.00	1,500.00	....	5,000.00	2,425.86	50.00	3,000.00
Incidental labor, not chargeable to other appropriations	2,500.00	500.00	500.00	5,000.00	9.92	2,500.00	2,000.00
Water tax and ice	....	6,000.00	18.00	6,000.00	....	....	1,400.00
Tolls and ferriage	25.00	....	25.00	200.00	....	....	200.00
Pay of watchmen	4,000.00	4,000.00	2,190.00	8,000.00	1,460.00	....	11,534.00
Flags, awnings, and packing boxes	50.00	200.00	50.00	500.00	76.44	500.00	500.00
Rent of landings	....	....	100.00	....	....	....	....
Total	21,706.00	32,500.00	6,258.00	87,300.00	10,543.78	23,000.00	65,164.00

Object.	Pensacola.	Mare Island.	Key West.	Port Royal.	Puget Sound.	Total.
Freight and transportation	$30.00	$3,000.00	$50.00	$100.00	$100.00	$3,755.00
Printing, stationery, and advertising	212.00	480.00	50.00	400.00	600.00	5,174.27
Books, maps, models, and drawings	20.00	20.00	....	100.00	100.00	5,325.50
Purchase and repair of fire engines	1,545.50	1,200.00	....	100.00	1,500.00	9,595.50
Machinery of every description and patent rights	179.00	1,350.00	....	150.00	500.00	15,979.00
Repairs on steam engines and attendance on same	1,266.00	....	....	200.00	880.00	14,371.00
Purchase and maintenance of oxen and horses, pay of hired teams, etc	2,118.00	9,400.00	....	800.00	2,200.00	53,494.33
Carts, timber wheels, and tools of every description	866.00	2,000.00	30.00	100.00	500.00	18,246.00
Postage on letters on public service and telegrams and telephones	....	145.00	60.00	250.00	100.00	2,783.80
Furniture for Government houses and offices in navy-yards	1,167.00	3,800.00	....	1,200.00	500.00	17,855.95
Coal and other fuel for yards and docks purposes	230.00	23,000.00	....	800.00	400.00	46,757.84
Candles, oil, gas, and electric lighting	275.00	....	29.00	....	1,500.00	15,329.00
Cleaning and clearing up yards and care of buildings	1,972.90	10,200.00	....	1,000.00	4,000.00	47,370.77
Attendance on fires, lights, fire engines, and apparatus	2,450.24	2,000.00	....	400.00	1,800.00	21,126.10
Incidental labor not chargeable to other appropriations	....	3,000.00	....	600.00	1,650.00	18,259.92
Water tax and ice	100.80	9,500.00	73.00	2,000.00	....	25,091.80
Tolls and ferriage	60.00	....	....	....	100.00	610.00
Pay of watchmen	8,234.40	2,500.00	1,395.00	2,000.00	....	45,818.40
Flags, awnings, and packing boxes	213.40	300.00	....	100.00	250.00	2,739.84
Rent of landings	....	....	....	....	....	100.00
Total	20,940.24	73,200.00	1,687.00	10,300.00	16,680.00	360,279.02

No. 8.—*Report showing amount expended during the fiscal year ending June 30, 1897, from appropriations pertaining to the Bureau of Yards and Docks for civilians employed on clerical duty or in any capacity than ordinary mechanics and workingmen at the several navy-yards and stations, and submitting estimate for such civilian employees for the fiscal year 1899, in compliance with the third section of naval appropriation act approved January 30, 1885 (vol. 23, Stat. L., p. 295), for a year of 365 days.*

Navy-yard and rating and rate of pay.	Amount paid to civilians employed during the fiscal year ended June 30, 1897.	Estimate for civilian employees for the fiscal year ending June 30, 1899.	
		Rate of pay.	Amount.
PORTSMOUTH, N. H.			
Clerk, at $1,400 per annum	$1,400.00	$1,400.00	$1,400.00
Mail messenger, at $2 per diem *a*	730.00	2.00	730.00
Messenger, at $600 per annum	600.00	600.00	600.00
Foreman laborer and head teamster, at $4 per diem *a*	1,456.00	4.00	1,460.00
Pilot, at $3 per diem *a*	1,092.00	3.00	1,095.00
Janitor, at $600 per annum	600.00	600.00	600.00
Total	5,878.00		5,885.00
BOSTON, MASS.			
Clerk, at $1,400 per annum	1,400.00	1,400.00	1,400.00
Foreman laborer, at $4 per diem	1,252.00	4.00	1,252.00
Messenger to commandant, at $1.76 per diem	549.12	1.76	550.88
Messenger, at $1.76 per diem	542.19	1.76	550.88
Mail messenger, at $2 per diem *a*	730.00	2.00	730.00
Writer, at $900 per annum	840.82	900.00	900.00
Master of tugs, at $1,200 per annum	1,098.10	1,200.00	1,200.00
Draftsman, at $4.56 per diem	1,422.72		
Electrician, at $4 per diem	1,386.00		
Clerk, labor board, at $3.04 per diem	234.08		
Total	9,455.03		6,583.76
NEW YORK, N. Y.			
Clerk, at $1,400 per annum	1,066.26	1,400.00	1,400.00
Writer, at $1,017.25 per annum	952.99	1,017.25	1,017.25
Two masters of tugs, at $1,500 each per annum	2,999.88	1,500.00	3,000.00
Two writers, at $900 each per annum	1,800.00	900.00	1,800.00
Foreman of laborer, at $4.50 per diem		4.50	1,408.50
Mail messenger, at $2 per diem *a*	702.00	2.00	730.00
Two messengers, at $2.25 each per diem	1,404.00	2.25	1,408.50
Draftsman, at $5 per diem	1,565.00	5.00	1,565.00
Quarterman, at $3 per diem	895.50	3.00	939.00
Superintendent of teams or quarterman, at $4 per diem		4.00	1,252.00
Messenger to commandant, at $2.25 per diem	820.12	2.25	821.25
Electrician at $1,200 per annum	1,200.00	1,200.00	1,200.00
Quarterman mechanic, at $4 per diem	1,168.50		
Leveler, at $4 per diem	1,248.00		
Special laborer, at $2.48 per diem	776.24		
Do	776.24		
Special laborer, at $2.24 per diem	701.12		
Rodman laborer, at $3 per diem	939.00		
Special laborer, at $3.68 per diem	1,199.22		
Hostler in charge, at $2.48 per diem	861.80		
Inspector, at $4 per diem	1,185.00		
Sub-inspector, at $4 per diem	1,115.00		
Do	802.00		
Do	753.00		
Do	108.00		
Do	124.00		
Do	20.00		
Do	84.00		
Inspector, at $3.50 per diem	252.87		
Special laborer, at $2.48 per diem	32.24		
One yard pilot, at $2,000 per annum		2,000.00	2,000.00
Total	25,551.98		18,541.50
SACKETTS HARBOR, N. Y.			
Ship keeper, at $1 per diem	365.00	1.00	365.00

a Including Sundays.

No. 8.—*Report showing amount expended during the fiscal year ending June 30, 1897, from appropriations pertaining to the Bureau of Yards and Docks, etc.*—Continued.

Navy-yard and rating and rate of pay.	Amount paid to civilians employed during the fiscal year ended June 30, 1897.	Estimate for civilian employees for the fiscal year ending June 30, 1899.	
		Rate of pay.	Amount.
LEAGUE ISLAND, PA.			
Clerk, at $1,400 per annum	$1,399.98	$1,400.00	$1,400.00
Writer and telegraph operator, at $1,000 per annum	999.96	1,000.00	1,000.00
Messenger, at $2 per diem	602.00	2.00	626.00
Foreman laborer, at $4 per diem	1,252.00	4.00	1,252.00
Master of tugs, at $1,200 per annum (submitted)		1,200.00	1,200.00
Leveler, at $3.84 per diem	1,171.20		
Sub-inspector, at $3.50 per diem	1,067.50		
Draftsman, at $5 per diem	1,505.00		
Special laborer, at $2.56 per diem, first class	784.32		
Do	730.56		
Do	744.64		
Special laborer, at $2 per diem, third class	518.75		
Special laborer, at $1.84 per diem, fourth class	552.46		
Total	11,328.37		5,478.00
WASHINGTON, D. C.			
Clerk, at $1,400 per annum	1,400.00	1,400.00	1,400.00
Messenger, at $2 per diem	626.00	2.00	626.00
Foreman laborer, at $4 per diem	1,252.00	4.00	1,252.00
Electrician, at $1,200 per annum	1,200.00	1,200.00	1,200.00
Special laborer, at $3 per diem	934.12		
Trackman, at $3.04 per diem	522.88		
Special laborer, at $2 per diem	592.75		
Special mechanic, at $2.28 per diem	905.28		
Special mechanic, at $3.04 per diem	914.66		
Do	915.04		
Quarterman, at $3.50 per diem	1,047.43		
Total	10,310.16		4,478.00
NORFOLK, VA			
Clerk, at $1,400 per annum	1,400.00	1,400.00	1,400.00
Writer, at $1,017.25 per annum	1,017.25	1,017.25	1,017.25
Writer, at $1,000 per annum	1,000.00	1,000.00	1,000.00
Foreman laborer, at $4 per diem	1,252.00	4.00	1,252.00
Mail messenger, at $2 per diem [a]	730.00	2.00	730.00
Two messengers, at $2 each per diem	1,252.00	2.00	1,252.00
Pilot, at $2.26 per diem	707.28	2.26	707.38
Electrician, at $1,200 per annum	1,200.00	1,200.00	1,200.00
Special laborer, at $2.80 per diem	872.00		
Special laborer, at $2.48 per diem	471.20		
Special laborer, at $2 per diem	620.00		
Do	614.00		
Do	626.00		
Skilled laborer, at $3.26 per diem	182.78		
Draftsman, at $5.04 per diem	1,544.76		
Draftsman, at $4 per diem	4.00		
Quarterman mason, at $4.50 per diem	1,343.25		
Quarterman, at $3.76 per diem	77.08		
Total	14,913.60		8,558.63
PENSACOLA, FLA.			
Clerk, at $1,200 per annum	1,200.00	1,200.00	1,200.00
Mail messenger, at $2 per diem [a]	730.00	2.00	730.00
Total	1,930.00		1,930.00
PORT ROYAL, S. C.			
Clerk, at $1,200 per annum		1,200.00	1,200.00
Rodman and inspector, at $3 per diem		3.00	939.00
Messenger and janitor, at $1.50 per diem [a]		1.50	547.50
Skilled laborer, at $2.48 per diem	863.04		
Rodman, at $2.40 per diem	777.30		
One master of tugs, at $1,200 per annum		1,200.00	1,200.00
Total	1,640.34		3,886.50
KEY WEST, FLA.			
Mail messenger, at $600 per annum	600.00	600.00	600.00

[a] Including Sundays.

No. 8.—*Report showing amount expended during the fiscal year ending June 30, 1897, from appropriations pertaining to the Bureau of Yards and Docks, etc.*—Continued.

Navy-yard and rating and rate of pay.	Amount paid to civilians employed during the fiscal year ended June 30, 1897.	Estimate for civilian employees for the fiscal year ending June 30, 1899.	
		Rate of pay.	Amount.
MARE ISLAND, CAL.			
Clerk, at $1,400 per annum	$1,400.00	$1,400.00	$1,400.00
Writer, at $1,017.25 per annum	1,017.25	1,017.25	1,017.25
Foreman laborer, at $6 per diem	1,854.00	6.00	1,878.00
Foreman laborer, at $5.50 per diem	1,713.25	5.50	1,721.50
Pilot, at $4.80 per diem	1,502.40	4.80	1,502.40
Draftsman, at $5 per diem	1,515.00	5.00	1,565.00
Mail messenger, at $2 per diem *a*	720.00	2.00	730.00
Messenger, at $2 per diem	626.00	2.00	626.00
Electrician, at $1,200 per annum	1,200.00	1,200.00	1,200.00
Messenger and lamplighter, at $2 per diem	626.00	2.00	626.00
Machinist in charge, at $4.50 per diem	1,406.79		
Quarterman, at $4.24 per diem	1,320.76		
Janitor, at $2.48 per diem	774.90		
Stable keeper, at $3.50 per diem	1,277.50		
Roundsman, at $3.04 per diem	1,109.60		
Roundsman, at $3 per diem	1,072.50		
Special laborer, at $3.28 per diem	1,026.64		
Special laborer, at $1.50 per diem	450.00		
Special laborer, at $3.04 per diem	870.96		
Special laborer, at $2.48 per diem	757.29		
Special laborer, at $3.26 per diem	166.26		
Subinspector, at $4 per diem	462.00		
Leveler, at $4 per diem	102.00		
Total	22,971.10		12,266.15
NAVAL STATION, PUGET SOUND, BREMERTON, WASH.			
Clerk, at $1,200 per annum		1,200.00	1,200.00
Rodman inspector, at $3.50 per diem		3.50	1,095.50
Messenger and janitor, at $1.76 per diem *a*	596.00	1.76	642.40
Assistant draftsman, at $5 per diem	1,575.00		
Special laborer, at $3.25 per diem	195.00		
Special laborer, at $3.25 per diem	799.50		
Sub-inspector, at $3.50 per diem	59.07		
Sub-inspector, at $4 per diem	314.50		
Sub-inspector, at $4 per diem	274.00		
One master of tugs, at $1,200 per annum		1,200.00	1,200.00
Total	3,813.07		4,137.90
SUBMITTED IN ABOVE ESTIMATES.			
League Island, Pa.:			
One master of tugs, at $1,200 per annum			1,200.00
For steam tug at that yard, the construction of which was authorized by the acts approved March 2, 1895, and June 10, 1896. The tug has been completed and is ready for service.			

a Including Sundays.

Recapitulation of expenditures for certain employees for the fiscal year ended June 30, 1897, with estimates for the fiscal year ending June 30, 1899, per act approved January 30, 1885 (Stat. L., vol. 23, p. 295).

Navy-yards and stations.	Expenditures 1896–97.	Estimates 1898–99.
Portsmouth, N. H	$5,878.00	$5,885.00
Boston, Mass	9,455.03	6,583.76
Brooklyn, N. Y	25,551.98	18,541.50
Sacketts Harbor, N. Y	365.00	365.00
League Island, Pa	11,328.37	5,478.00
Washington, D. C	10,310.16	4,478.00
Norfolk, Va	14,913.60	8,558.63
Port Royal, S. C	1,640.34	8,886.50
Pensacola, Fla	1,930.00	1,930.00
Key West, Fla	600.00	600.00
Mare Island, Cal	22,971.10	12,266.15
Bremerton, Puget Sound, Wash	3,813.07	4,137.90
Total	108,756.65	72,710.44

No. 9.—*Statement of the appropriations for the Bureau of Yards and Docks for the fiscal year ended June 30, 1897, and prior years, showing the amounts expended under each specific head of appropriation and the balances remaining unexpended June 30, 1897, as required by section 429, Revised Statutes.*

Appropriation for general maintenance, 1897	$265,000.00
Expended from July 1, 1896, to June 30, 1897	244,306.71
Balance on hand July 1, 1897	20,693.29
Which will be entirely expended.	
Appropriation for repairs and preservation, 1897	400,000.00
Expended from July 1, 1896, to June 30, 1897	365,082.58
Balance on hand July 1, 1897	34,917.42
Which will be entirely expended.	
Appropriation for civil establishment, 1897	61,486.04
Expended from July 1, 1896, to June 30, 1897	58,246.09
Balance on hand July 1, 1897	3,239.95
Which will revert to the Treasury.	
Appropriation for contingent, 1897	15,000.00
Expended from July 1, 1896, to June 30, 1897	14,989.75
Balance on hand July 1, 1897	10.25
After liabilities are paid balance will revert to Treasury.	
Appropriation for Naval Home, Philadelphia, 1897	79,725.00
Expended from July 1, 1896, to June 30, 1897	61,213.67
Balance on hand July 1, 1897	18,511.33
After liabilities are paid balance will revert to Treasury.	
Appropriation, navy-yard, Portsmouth, N. H.:	
For coal pocket	6,500.00
For construction of boiler house for buildings Nos. 45 and 46	7,000.00
For construction of boiler house for building No. 10	15,000.00
	28,500.00
Expended from July 1, 1892, to June 30, 1897	19,084.86
Balance on hand July 1, 1897	9,415.14
Which will be entirely expended.	
Appropriation, navy-yard, Boston, Mass.:	
For construction of steel sheers	12,000.00
Expended from July 1, 1897	11,744.86
Balance on hand July 1, 1897	255.14
Which will revert to the Treasury.	
Appropriation, navy-yard, Boston, Mass.:	
To complete the electric-light plant at the Boston Navy-Yard, including the U. S. S. *Wabash*	1,500.00
Expended from July 1, 1895, to June 30, 1897	1,493.63
Balance on hand July 1, 1897	6.37
Appropriation, navy-yard, Boston, Mass.:	
For cart shed (alteration of building No. 56)	4,500.00
Expended from July 1, 1896, to July 1, 1897	4,500.00
Appropriation, navy-yard, Boston, Mass.:	
For two boilers for electric-light plant	4,500.00
Expended from July 1, 1896, to July 1, 1897	4,495.00
Balance on hand July 1, 1897	5.00
Appropriation, navy-yard, Brooklyn, N. Y.:	
For extension and improvements	593,860.33
For completion of dry dock No. 3, act February 26, 1896	50,000.00
	643,860.33
Expended from July 1, 1892, to June 30, 1897	643,252.95
Balance on hand July 1, 1897	607.38
Which will be entirely expended.	

Appropriation, navy-yard, Brooklyn, N. Y.:	
For repairs and improvement	$300,000.00
Expended from July 1, 1893, to June 30, 1897	279,957.28
Balance on hand July 1, 1897	20,042.72
Which will be entirely expended.	
Appropriation, navy-yard, Brooklyn, N. Y.:	
For caisson for granite dock	35,000.00
For renewing buildings Nos. 114, 115, and 116 (construction and repair)	70,000.00
For grading, paving, and laying of sewers (all expended)	10,000.00
For quay wall inside Whitney Basin (all expended)	25,000.00
	140,000.00
Expended from July 1, 1894, to June 30, 1897	134,047.50
Balance on hand July 1, 1897	5,952.50
Which will be entirely expended.	
Appropriation, navy-yard, Brooklyn, N. Y.:	
For pumping plant for granite dock	40,000.00
For grading, paving, sidewalks, and sewers	10,000.00
For rebuilding construction and repair shipwright shed No. 44 (all expended)	6,534.00
For putting equipment paint shop in good condition	3,575.00
For dredging (all expended)	55,000.00
For quay wall inside Whitney Basin (all expended)	25,000.00
For heating apparatus for equipment rigging loft	1,286.00
For extension of railroad system	10,000.00
	151,395.00
Expended from July 1, 1895, to June 30, 1897	107,991.40
Balance on hand July 1, 1897	43,403.60
Which will be entirely expended.	
Appropriation, navy-yard, Brooklyn, N. Y.:	
For wing and quay walls of dry dock No. 3, available June 10, 1896.	60,000.00
For grading, paving, sidewalks, and sewers	10,000.00
For quay wall for coal dock	40,000.00
For quay wall, Whitney Basin	25,000.00
For flushing culverts in causeway (available March 3, 1897)	25,000.00
	160,000.00
Expended from June 10, 1896, to June 30, 1897	109,282.87
Balance on hand July 1, 1897	50,717.13
Which will be entirely expended.	
Appropriation, navy-yard, League Island, Pa.:	
For construction of sea wall	20,000.00
For completion of sheer legs	11,900.00
For completion of electric light plant	10,000.00
For completion of east dry dock pier (all expended)	40,000.00
	81,900.00
Expended from July 1, 1894, to June 30, 1897	79,078.58
Balance on hand July 1, 1897	2,821.42
Which will be entirely expended.	
Appropriation, navy-yard, League Island, Pa.:	
For construction of sea wall	20,000.00
For artesian wells	9,000.00
	29,000.00
Expended from July 1, 1895, to June 30, 1897	20,843.16
Balance on hand July 1, 1897	8,156.84
Which will be entirely expended.	

Appropriation, navy-yard. League Island, Pa.:	
For dredging and filling in	$30,000.00
For water-closets for yard	5,580.00
For lightning rods and sidewalks	2,000.00
	37,580.00
Expended from July 1, 1896, to June 30, 1897	5,724.13
Balance on hand July 1, 1897	31,855.87
Which will be entirely expended.	
Appropriation, navy-yard, Washington, D. C.:	
For one wrecking car, with 15-ton crane attachment	2,500.00
For extension of yard wall through marsh	24,693.00
	27,193.00
Expended from July 1, 1893, to June 30, 1897	27,012.75
Balance on hand July 1, 1897	180.25
Which will be entirely expended.	
Appropriation, navy-yard, Washington, D. C.:	
For new iron roof for foundry	33,000.00
Expended from July 1, 1895, to June 30, 1897	30,775.36
Balance on hand July 1, 1897	2,224.64
Which will be entirely expended.	
Appropriation, navy-yard, Washington, D. C.:	
For roof trusses and roof for entire quadrangle building	59,411.77
For alteration of north end of west side quadrangle building	15,657.44
For building sentry boxes at east gate and south end	100.00
For building for paint shop and inflammable material	2,500.00
	77,669.21
Expended from July 1, 1896, to June 30, 1897	53,157.57
Balance on hand	24,511.64
Which will be entirely expended.	
Appropriation, navy-yard, Norfolk, Va.:	
For construction of a fire-proof storehouse No. 15, destroyed by fire December, 1895	72,365.77
Expended from July 1, 1894, to June 30, 1897	68,979.40
Balance on hand July 1, 1897	3,386.37
Which will revert to the Treasury after outstanding liabilities are paid.	
Appropriation, navy-yard, Norfolk, Va.:	
For extension of quay wall, completed	20,000.00
For land lighter, completed	2,000.00
For repairs to granite dock, completed	15,000.00
For one deck scow	2,000.00
	39,000.00
Expended from July 1, 1895, to June 30, 1897	38,999.66
Balance on hand July 1, 1897	.34
Appropriation, navy-yard, Norfolk, Va.:	
For extension of quay walls (continuation of) completed	15,000.00
For boiler for electric plant, completed	9,000.00
For quay wall north end of timber basin	20,000.00
	44,000.00
Expended from July 1, 1896, to June 30, 1897	43,985.65
Balance on hand July 1, 1897	14.35
Which will be entirely expended.	
Appropriation, naval station, Port Royal, S. C.:	
Toward the construction of a timber dry dock	200,000.00
To continue the construction of a timber dry dock	150,000.00
For the completion of a timber dry dock	150,000.00
	500,000.00

Expended from July 1, 1890, to June 30, 1897	$500,000.00
Appropriation, naval station, Port Royal, S. C.:	
For repairs to main wharf	18,368.00
Expended from July 1, 1894, to June 30, 1897	18,368.00
Appropriation, naval station, Port Royal, S. C.:	
For construction and repair shop	60,000.00
Expended from July 1, 1895, to June 30, 1897	49,854.85
Balance on hand July 1, 1897	10,145.15
Which will be entirely expended.	
Appropriation, naval station, Port Royal, S. C.:	
For chemical fire engine, expended	650.00
For lightning conductors	532.00
For artesian well	15,000.00
For dredging	150,000.00
For steel tower and tank	4,000.00
For storehouse	10,000.00
For purchase of land adjoining the naval station	5,000.00
	185,182.00
Expended from July 1, 1896, to June 30, 1897	19,400.78
Balance on hand July 1, 1897	165,781.22
Which will be entirely expended.	
Appropriation, dry dock, Algiers, La.:	
Toward the establishment of a dry dock at the Government reservation, near Algiers, La	25,000.00
For the purpose of completing the purchase of additional lands necessary for the establishment of a dry dock at Algiers, La	23,025.03
	48,025.03
Expended from July 1, 1893, to June 30, 1897	46,312.83
Balance on hand July 1, 1897	1,712.20
Which will be entirely expended.	
Appropriation, naval station, Key West, Fla.:	
For adjustable stern dock	30,000.00
Expended from July 1, 1889, to June 30, 1897	27,000.00
Balance on hand July 1, 1897	3,000.00
Which is held to pay reservation under contract.	
Appropriation, naval station, Key West, Fla.:	
For coaling shed	14,000.00
For coaling pier	40,000.00
	54,000.00
No expenditures have been made for coaling shed and coaling pier up to June 30, 1897.	
Balance on hand July 1, 1897	54,000.00
Appropriation, naval station, Key West, Fla.:	
For sea wall	3,400.00
For dredging	3,000.00
	6,400.00
Expended from July 1, 1896, to June 30, 1897	1,549.60
Balance on hand July 1, 1897	4,850.40
Which will be entirely expended.	
Appropriation, navy-yard, Mare Island, Cal.:	
For one 12-ton pillar wharf crane	3,800.00
Expended from July 1, 1890 to June 30, 1897	2,248.54
Balance on hand July 1, 1897	1,551.46
Which will be entirely expended.	
Appropriation, navy-yard, Mare Island, Cal.:	
For extending yard railroads	18,332.00
For shed over galvanized plant, construction and repair	3,750.00
	22,082.00

Expended from July 1, 1894 to June 30, 1897	$22,082.00
Appropriation, navy-yard, Mare Island, Cal.:	
For enlarging entrance to stone dry dock	20,736.00
For new caisson for stone dry dock	53,000.00
For improvement coppersmith shop, steam engineering, completed	4,527.00
For yard roads, completed	5,000.00
	83,263.00
Expended from July 1, 1895 to June 30, 1897	55,575.19
Balance on hand July 1, 1897	27,687.81
Which will be entirely expended.	
Appropriation, navy-yard, Mare Island, Cal.:	
For extension of quay wall	30,000.00
For guard chains about stone dry dock	1,470.57
For grading and paving	10,000.00
For removing board sidewalks and extending roads	15,685.00
For ship fitters' shed	30,000.00
For storage shed for construction and repair	10,139.00
	99,294.57
Expended from July 1, 1896, to June 30, 1897	42,624.88
Balance on hand July 1, 1897	54,669.69
Which will be entirely expended.	
Appropriation, dry dock, Puget Sound, Wash.:	
For purchase of tract of land for dry-dock site and construction of dry dock upon said land	210,000.00
To continue the construction of the dry dock	225,000.00
To continue the construction of dry dock at Port Orchard, and for erecting office buildings and other necessary structures, approaches to dry dock, quarters for civil engineer and inspector, pay of superintendents, inspectors, and draftsman, necessary dredging, clearing and cleaning up station, incidental expenses, unforeseen emergencies, and contingent expenses	45,000.00
For construction of dry dock, dredging, office buildings, and officers' quarters, to be made immediately available	260,000.00
	740,000.00
Expended from July 1, 1891, to June 30, 1897	737,403.13
Balance on hand July 1, 1897	2,596.87
Appropriation, naval station, Puget Sound, Wash.:	
For construction and repair shop at dry dock	60,000.00
For storehouse	20,000.00
For two steel tanks	11,980.00
For water main and purchase of land adjoining station containing a spring for water supply	4,000.00
For clearing the ground about station	5,250.00
	101,230.00
Expended from July 1, 1896, to June 30, 1897	16,809.49
Balance on hand July 1, 1897	84,420.51
Which will be entirely expended.	
Appropriation, naval station, Pago Pago, Samoa:	
For the purpose of permanently establishing a station for coal and other supplies for the naval and commercial marine of the United States on the shores of the bay of the harbor of Pago Pago in the island of Tutuilla, Samoa, for the erection of the necessary buildings and structures thereon, and for such other purposes as may, in the judgment of the President, be necessary to confirm the rights of the United States and the King of the Samoan Islands, and the deed of transfer made in accordance therewith, one hundred thousand dollars, to be immediately available	100,000.00

Coaling Station, Pago Pago, Samoa:

That the expenses incurred in the purchases, shipment, and discharge of coal for the naval station at Pago Pago, island of Tutuilla, Samoa, amounting to the sum of thirty-six thousand and forty-one dollars and eighty-seven cents, shall be paid from the appropriation of one hundred thousand dollars for the purpose of permanently establishing a station for coal and other supplies for the naval and commercial marine of the United States made by the act approved March second, eighteen hundred and eighty-nine.

Expended from July 1, 1889, to June 30, 1897	$43,019.67
Balance on hand July 1, 1897	56,980.33

Abstract and statement of offers received for the construction of works of improvement, including labor and material, coming under the cognizance of the Bureau of Yards and Docks, as required by section 429, Revised Statutes, for the fiscal year ended June 30 1897.

List of offers received under Bureau's advertisement dated July 16, 1896, for construction of extension of quay wall at navy-yard, Mare Island, Cal.:

San Francisco Bridge Company	$21,537.00
Wm. H. Healy	21,273.00
Johnson & Peterson	[1]19,730.00
Darby Laydon & Co	24,943.00
Phillips & Rae	26,133.00
Jas. A. McMahon	21,667.00

List of offers received under Bureau's advertisement dated August 3, 1896, for iron-roof trusses and roof for gun-carriage shop at navy-yard, Washington, D. C.:

R. H. Hood	23,945.00
The Ellicott Machine Company	24,445.00
Boston Bridge Works	23,888.00
The Buffalo Bridge and Iron Works	19,295.00
Brown-Ketcham Iron Works	21,630.00
Penn Bridge Company—A	[1]18,400.00
Penn Bridge Company—B	18,700.00
New Jersey Steel and Iron Company	20,900.00
The Berlin Iron Bridge Company	24,700.00
The L. Schreiber and Sons Company	21,268.00
Benner & Opdyke	24,558.00
Edge Moor Bridge Works	23,425.00
Milwaukee Bridge and Iron Works	20,900.00

List of offers received under Bureau's advertisement dated August 3, 1896, for iron roof for iron foundry at navy-yard, Washington, D. C.:

Benner & Opdyke	14,240.00
R. H. Hood	11,448.00
Boston Bridge Works	11,400.00
New Jersey Steel and Iron Company	13,700.00
The Berlin Iron Bridge Company	12,600.00
Buffalo Bridge and Iron Works	[1]11,390.00

List of offers received under Bureau's advertisement dated August 17, 1896, for concrete sidewalks at navy-yard, League Island, Pa.:

Wm. Krause & Son	per square yard	1.50
A. S. Reed & Bro. Company	per square foot	.19
Vulcanite Paving Company	do	[1].15¼
The American Artificial Pavement and Construction Company	do	.20
E. J. Hedden	do	.23¼

List of offers received under Bureau's advertisement dated August 17, 1896, for supply and installation of lightning rods at navy-yard, League Island, Pa.:

Wm. F. Brown	752.00
John Baizley	800.00
Jackson, Sterling & McElroy	[1]300.00

List of offers received under Bureau's advertisement dated August 17, 1896, for alteration of building No. 56 at navy-yard, Boston, Mass.:

John McNamara & Sons	10,600.00
O'Connell & Furbush	7,733.00
L. K. Marston	[1]4,018.00

---

[1] Accepted.

List of offers received under Bureau's advertisement dated August 27, 1896, for construction of a section of quay wall inside Whitney Basin at navy-yard, Brooklyn, N. Y.:

T. & A. Walsh	per linear foot	$123.00
Benner & Opdyke	do	[1]96.80
Thomas Dwyer	do	109.00
P. Sanford Ross	do	107.00

List of offers received under Bureau's advertisement dated August 24, 1896, for two steel tanks at Puget Sound Naval Station, Wash.:

Moran Bros	7,915.00
Reeves Bros	8,909.00
P. F. Dundon	[1]7,843.00
Vulcan Iron Works Company	14,610.00
Wolff & Zwicker Iron Works	8,192.00

List of offers received under Bureau's advertisement dated August 24, 1896, for sinking an artesian well at naval station, Port Royal, S. C.:

Andrews & Edenfield	18,750.00
B. F. Kramer	24,800.00
E. F. Joyce	9,975.00
P. H. & J. Conlan	10,950.00

List of offers received under Bureau's advertisement dated August 27, 1896, for constructing quay wall at coal wharf at navy-yard, Brooklyn, N. Y.:

Thomas Dwyer	per linear foot	119.00
P. Sanford Ross	do	[1]84.50
Benner & Opdyke	do	111.80

List of offers under Bureau's advertisement dated November 17, 1896, for storehouse at naval station, Port Royal, S C.:

E. N. Jenkins	10,811.00
L. P. Hazen & Co	[1]8,593.00
John H. McKenzie	9,780.00
D. Getaz & Co	8,900.00
Henry Oliver	10,560.00
B. F. Kramer	9,150.00
W. R. Taylor	13,135.00
Grant Wilkins	9,700.00
T. O. Brown	10,365.00

List of offers received under Bureau's advertisement dated November 17, 1896, for tower and tank at naval station, Port Royal, S. C.:

The Marietta Boiler Works	5,228.00
The L. Schreiber & Sons Company	3,451.00
Warren City Boiler Works	2,890.00
Geo. H. Crofts	3,232.00
Lookout Steam Boiler Works	3,325.00
Henry Oliver	3,448.00
L. P. Hazen & Co	3,467.00
Lombard Iron Works and Supply Company	[1]2,549.69
Penn Bridge Company	4,300.00
Manhattan Supply Company	4,394.00
King Bridge Company	3,000.00
W. R. Taylor	3,998.16
Grant Wilkins	2,900.00
R. G. Packard	4,700.00
John F. Riley	3,440.00
Watkins & Hardaway	3,729.51

List of offers received under Bureau's advertisement dated December 28, 1896, for construction and repair shop at Puget Sound Naval Station, Wash.:

New York Dredging Company (complete)	68,500.00
New York Dredging Company	64,300.00
Do	59,340.00
J. M. Dugan	55,500.00
Do	51,480.00
Do	47,260.00
Penn Bridge Company	[1]54,100.00
Do	51,200.00
Do	47,750.00
Spurr & Wilmot	65,987.00

---

[1] Accepted.

List of offers received under Bureau's advertisement, etc.—Continued.

Spurr & Wilmot	$61,799.00
Do	57,609.00
Bringham & Frace	78,055.00
Do	73,023.00
Do	67,795.00
Nichols & Crothers	62,700.00
Do	58,600.00
Do	54,700.00
J. H. McKay	73,820.00
Do	69,820.00
Do	64,820.00
Moran Bros. Company	55,478.00
Do	52,178.00
Do	49,478.00
Moran Bros. Company (corrected by telegram)	57,753.00
Do	54,453.00
Do	51,753.00
McRae & Thompson	[1]62,643.00
Do	58,479.00
Do	54,315.00
J. C. Redwood	[1]70,000.00
Do	64,900.00
Do	59,700.00
John Huntington & Co	[1]56,100.00
Do	52,100.00
Do	48,000.00

List of offers received under Bureau's advertisement dated December 28, 1896, for storehouse at Puget Sound naval station, Washington:

New York Dredging Company	17,440.00
J. M. Dougan	17,961.00
Penn Bridge Company	[2]13,875.00
Do	14,200.00
Spurr & Wilmot	17,989.00
Nichols & Crothers	13,600.00
J. H. McKay	18,400.00
Bringham & Frace	16,377.00
Moran Bros	15,175.00
McRae & Thompson	[1]18,520.00
J. C. Redwood	[1]18,900.00
John Huntington & Co	[1]16,200.00

List of offers received under Bureau's advertisement dated May 19, 1897, for dredging and filling in (per cubic yard) at navy-yard, League Island, Pa.:

	Basin.	East dry dock pier.
American Dredging Company	0.17\frac{2}{10}$	$0.35
New York Dredging Company	[2].09$\frac{9}{10}$	[2].30
Frank C. Somers	.14	.32

List of offers received under Bureau's advertisement dated May 19, 1897, for erection of a building and installation of water-closets at navy-yard, League Island, Pa.:

S. R. Riley	$6,029.00
James H. Shea	[2]4,800.00
Am. Artificial S. P. & Construction Company	6,500.00
Stewart Bros	5,500.00

List of offers received under Bureau's advertisement dated June 17, 1897, for coal shed between dry docks 2 and 3 at navy-yard, Brooklyn, N. Y.:

R. H. Hood	[2]4,790.00
Geo. Tilfer	5,935.00
Kelley & Kelly	5,405.00
The King Bridge Company	6,780.00
Benner & Opdyke	6,575.00

List of offers received under Bureau's advertisement dated June 17, 1897, for construction of a quay wall inside of Whitney Basin at navy-yard, Brooklyn, N. Y.:

Frank W. McNeal	per linear foot	117.80
P. Sanford Ross	do	107.79
Benner & Opdyke	do	[2]99.00

---

[1] Received too late.

[2] Accepted.

List of offers received under Bureau's advertisement dated June 17, 1897, for construction of two sections of quay wall in the Wallabout Channel at navy-yard, Brooklyn, N. Y.:

Benner & Opdyke	per linear foot..	[1] $95.00
Frank W. McNeal	do....	116.85
P. Sanford Ross	do....	111.59

List of offers received under Bureau's advertisement dated June 23, 1897, for dredging a channel in Mare Island Strait and other dredging at Mare Island Navy-Yard:

A. W. Von Schmidt	per cubic yard..	0.14¼
Warren B. English	do....	.11$\frac{88}{100}$
California Bridge and Construction Company	do....	.13$\frac{1}{10}$
San Francisco Bridge Company	do....	[1].10$\frac{74}{100}$
Pacific Coast D. & R. Company	do....	.13$\frac{2}{10}$

List of offers received under Bureau's advertisement dated June 23, 1897, for extension of quay wall at navy-yard, Mare Island, Cal.:

Darby, Layton & Co	20,598.00
San Francisco Bridge Company	18,925.00
E. J. Cotton	21,580.00
Jas. A. McMahon	19,345.00
Johnson & Peterson	18,850.00
William H. Healy	[1] 17,513.30
California Bridge and Construction Company	23,698.20
John Kelso Company	30,000.00

Estimates of appropriations required for the service of the fiscal year ending June 30, 1899, by the Bureau of Yards and Docks, Navy Department.

Detailed objects of expenditure, and explanations.	Estimated amount which will be required for each detailed object of expenditure.	Total amount to be appropriated under each head of appropriation.	Amount appropriated for the current fiscal year ending June 30, 1898.
SALARIES.			
One chief clerk, at $1,800 per annum (act Feb. 19, 1897)....	$1,800.00		
One draftsman and clerk, at $1,800 per annum (same act)..	1,800.00		
One clerk of class 3, at $1,600 per annum (same act).......	1,600.00		
One clerk of class 2, at $1,400 per annum (same act).......	1,400.00		
One clerk, at $1,000 per annum (same act)................	1,000.00		
One assistant messenger, at $720 per annum (same act)....	720.00		
One laborer, at $660 per annum (same act)................	660.00		
		$8,980.00	$8,980.00
NOTE.—The Bureau reports that under the requirement of section 2, act of July 11, 1890 (26 Stat., 267), all the clerks attached to the Bureau of Yards and Docks are above a fair standard of efficiency.			
MAINTENANCE YARDS AND DOCKS, 1899.			
For general maintenance of yards and docks, namely: For freight, transportation of materials and stores; books, maps, models, and drawing; purchase and repair of fire engines; machinery; repairs on steam fire engines and attendance on the same; purchase and maintenance of oxen, horses, and driving teams; carts, timber wheels, and all vehicles for use in the navy-yards; tools and repairs of the same; postage on letters and other mailable matter on public service sent to foreign countries, and telegrams, stationery, furniture for Government houses and offices in navy-yards; coal and other fuel, candles, oil, and gas; cleaning and clearing up yards and care of buildings; attendance on fires, lights, fire engines, and apparatus; incidental labor at navy-yards; water tax, tolls, and ferriage; rent of four officers' quarters at Philadelphia, Pa.; pay of watchmen in navy-yards; awnings and packing boxes, and advertising for yards and docks and other purposes; and for rent of wharf and storehouse at Erie, Pa., for use and accommodation of U. S. S. Michigan. Increase of $25,000. (Act March 3, 1897; submitted)	300,000.00	300,000.00	275,000.00
CONTINGENT YARDS AND DOCKS, 1899.			
For contingent expenses that may arise at navy-yards and stations. Increase of $5,000. (Act March 3, 1897; submitted)	20,000.00	20,000.00	15,000.00

---

[1] Accepted.

timates of appropriations required for the service of the fiscal year ending June 30, 1899, by the Bureau of Yards and Docks, Navy Department—Continued.

Detailed objects of expenditure, and explanations.	Estimated amount which will be required for each detailed object of expenditure.	Total amount to be appropriated under each head of appropriation.	Amount appropriated for the current fiscal year ending June 30, 1898.
NAVAL HOME, PHILADELPHIA, PA.			
ne superintendent (act Mar. 3, 1897)	$600.00		
steward (same act)	480.00		
matron (same act)	360.00		
chief cook (same act)	360.00		
sistant cook (same act)	240.00		
	180.00		
ief laundress (same act)	192.00		
laundresses, at $168 each per annum (same act)	840.00		
r scrubbers, at $168 each per annum (same act)	672.00		
head waiter (same act)	192.00		
t waitresses, at $168 each per annum (same act)	1,344.00		
scullion, at $200 per annum (same act)	200.00		
t laborers, at $240 each per annum (same act)	1,920.00		
e keeper and driver (same act)	360.00		
r-at-arms (same act)	480.00		
e corporals, at $300 each per annum (same act)	600.00		
barber (same act)	360.00		
carpenter (same act)	845.00		
painter (same act)	600.00		
ne engineer to run elevator (same act)	600.00		
		$11,425.00	$11,425.00
water rent and lighting (same act)	2,400.00		
cemetery, burial expenses, and headstones (same act)	350.00		
improvement of grounds (same act)	700.00		
repairs to buildings, furnaces, grates, ranges, furni-, and repair of furniture (same act), increase of 00, submitted	8,000.00		
usic in chapel (same act)	600.00		
sportation of indigent and destitute beneficiaries Naval Home (same act)	500.00	12,550.00	11,550.00
For support of beneficiaries (same act)	53,750.00	53,750.00	55,750.00
		77,725.00	78,725.00
CIVIL ESTABLISHMENT YARDS AND DOCKS, 1899.			
Navy-yard, Portsmouth, N. H.:			
One clerk, at $1,400 per annum (act Mar. 3, 1897)	1,400.00		
One mail messenger, at $2 per diem *a* (same act)	730.00		
One messenger, at $600 per annum (same act)	600.00		
One foreman laborer and head teamster, at $4 per diem *a* (same act)	1,460.00		
One pilot, at $3 per diem *a* (same act)	1,095.00		
One janitor, at $600 per annum (same act)	600.00	5,885.00	5,885.00
Navy-yard, Boston, Mass.:			
One clerk, at $1,400 per annum (act Mar. 3, 1897)	1,400.00		
One foreman laborer, at $4 per diem (same act)	1,252.00		
One messenger to commandant, at $1.76 per diem (same act)	550.88		
One messenger, at $1.76 per diem (same act)	550.88		
One mail messenger, at $2 per diem *a* (same act)	730.00		
One writer, at $900 per annum (same act)	900.00		
One master of tugs, at $1,200 per annum (same act)	1,200.00	6,583.76	6,583.76
Navy-yard, Brooklyn, N. Y.:			
One clerk, at $1,400 per annum (act Mar. 3, 1897)	1,400.00		
One writer, at $1,017.25 per annum (same act)	1,017.25		
One yard pilot, at $2,000 per annum (submitted)	2,000.00		
Two masters of tugs, at $1,500 each per annum (act Mar. 3, 1897)	3,000.00		
Two writers, at $900 each per annum (same act)	1,800.00		
One foreman laborer, at $4.50 per diem (same act)	1,408.50		
One mail messenger, at $2 per diem *a* (same act)	730.00		
Two messengers, at $2.25 each per diem (same act)	1,408.50		
One draftsman at $5 per diem (same act)	1,565.00		
One quarterman at $3 per diem (same act)	939.00		
One superintendent of teams or quarterman at $4 per diem (same act)	1,252.00		
One messenger to commandant at $2.25 per diem (same act) *a*	821.25		
One electrician at $1,200 per annum (same act)	1,200.00	18,541.50	16,541.50
aval station, Sacketts Harbor, N. Y.:			
One ship keeper at $365 per annum (act Mar. 3, 1897)	365.00	365.00	365.00

a Including Sundays.

Estimates of appropriations required for the service of the fiscal year ending June 30, 1899, by the Bureau of Yards and Docks, Navy Department—Continued.

Detailed objects of expenditure, and explanations.	Estimated amount which will be required for each detailed object of expenditure.	Total amount to be appropriated under each head of appropriation.	Amount appropriated for the current fiscal year ending June 30, 1898.
CIVIL ESTABLISHMENT YARDS AND DOCKS, 1899—cont'd.			
Navy-yard, League Island, Pa.:			
One clerk at $1,400 per annum (act Mar. 3, 1897)	$1,400.00		
One writer and telegraph operator at $1,000 per annum (same act)	1,000.00		
One messenger at $2 per diem (same act)	626.00		
One foreman laborer at $4 per diem (same act)	1,252.00		
One master of tugs, at $1,200 per annum (submitted)	1,200.00	$5,478.00	$4,278.00
Navy-yard, Washington, D. C.:			
One clerk at $1,400 per annum (act Mar. 3, 1897)	1,400.00		
One messenger at $2 per diem (same act)	626.00		
One foreman laborer at $4 per diem (same act)	1,252.00		
One electrician at $1,200 per annum (same act)	1,200.00	4,478.00	4,478.00
Navy-yard, Norfolk, Va.:			
One clerk, at $1,400 per annum (act Mar. 3, 1897)	1,400.00		
One writer, at $1,017.25 per annum (same act)	1,017.25		
One writer, at $1,000 per annum (same act)	1,000.00		
One foreman laborer, at $4 per diem (same act)	1,252.00		
One mail messenger, at $2 per diem [a] (same act)	730.00		
Two messengers, at $2.00 per diem each (same act)	1,252.00		
One pilot, at $2.26 per diem (same act)	707.38		
One electrician, at $1,200 per annum (same act)	1,200.00	8,558.63	8,558.63
Navy-yard, Pensacola, Fla.:			
One clerk, at $1,200 per annum (act Mar. 3, 1897)	1,200.00		
One mail messenger, at $2 per diem [a] (same act)	730.00	1,930.00	1,930.00
Navy-yard, Mare Island, Cal.:			
One clerk, at $1,400 per annum (act Mar. 3, 1897)	1,400.00		
One writer, at $1,017.25 per annum (same act)	1,017.25		
One foreman mason, at $6 per diem (same act)	1,878.00		
One foreman laborer, at $5.50 per diem (same act)	1,721.50		
One pilot, at $4.80 per diem (same act)	1,502.40		
One draftsman, at $5 per diem (same act)	1,565.00		
One mail messenger, at $2 per diem [a] (same act)	730.00		
One messenger, at $2 per diem (same act)	626.00		
One electrician, at $1,200 per annum (same act)	1,200.00		
One messenger and lamplighter, at $2 per diem (same act)	626.00	12,266.15	12,266.15
Naval station, Key West, Fla:			
One mail messenger, at $600 per annum (act Mar. 3, 1897)	600.00	600.00	600.00
Naval station, Puget Sound, Wash:			
One clerk, at $1,200 per annum (act Mar. 3, 1897)	1,200.00		
One rodman and inspector, at $3.50 per diem (same act)	1,095.50		
One messenger and janitor, at $1.76 per annum [a] (same act)	642.40		
One master of tugs, at $1,200 per annum (submitted)	1,200.00	4,137.90	2,937.90
Naval station, Port Royal, S. C.:			
One clerk, at $1,200 per annum (act Mar. 3, 1897)	1,200.00		
One rodman and inspector, at $3 per diem (same act)	939.00		
One messenger and janitor, at $1.50 per diem [a] (same act)	547.50		
One master of tug, at $1,200 per annum (submitted)	1,200.00	3,886.50	2,686.50
		72,710.44	67,110.44
NAVY-YARDS AND STATIONS.			
Navy-yard, Portsmouth, N. H.:			
Reappropriation of balance ($6,350) of appropriation of coal pocket, act of June 19, 1892, for coal sheds, Seaveys Island, for storage of coal (submitted).			
Navy-yard, Boston, Mass.:			
For iron roof for Crystal Palace building No. 42 (submitted)	15,400.00	15,400.00	14,500.00

[a] Including Sundays.

Estimates of appropriations required for the service of the fiscal year ending June 30, 1899, by the Bureau of Yards and Docks, *Navy Department*—Continued.

Detailed objects of expenditure, and explanations.	Estimated amount which will be required for each detailed object of expenditure.	Total amount to be appropriated under each head of appropriation.	Amount appropriated for the current fiscal year ending June 30, 1898.
NAVY-YARDS AND STATIONS—continued.			
Navy-yard, Brooklyn, N. Y..			
For dredging Whitney Basin and Wallabout (toward) (submitted.)	$70,000.00		
For quay wall between dry dock No. 1 and Main street (submitted)	60,000.00		
For quay wall, coal dock, to complete (submitted)	30,000.00		
For grading and sewering between dry dock and Clinton avenue, to continue (submitted)	10,000.00		
For grading and paving Causeway and roads around docks (submitted)	20,000.00		
For storehouse for steel (for construction and repair) (submitted)	17,500.00		
For oil and varnish storehouse (Supplies and Accounts) (submitted)	46,300.00		
For paving streets (submitted)	10,000.00		
For repairs to yards and docks workshop (submitted)	20,000.00		
For addition to electric-light system (submitted)	15,000.00		
For replacing storehouse (building No. 31). Condemned as dangerous and removed (submitted)	49,837.00		
		$348,637.00	$133,000.00
Navy-yard, League Island, Pa.:			
For dredging and filling in (submitted)	20,000.00		20,000.00
For mooring vessels in reserve basin (submitted)	56,000.00		
For extension of reserve basin (submitted)	120,000.00		
For continuation of west wall of causeway (submitted)	20,000.00		
For roads and walks to reserve basin and about the yard (submitted)	10,000.00		
For workshop and boiler house for ordnance (submitted)	60,000.00		
For steam generator for heating purposes and electric plant (submitted)	5,500.00		
		291,500.00	193,222.00
Navy-yard, Washington, D. C.:			
For improvement of electric plant (submitted)	16,000.00		
For storehouse for guns (ordnance) (submitted)	35,000.00		
For new roof for south gun shop (ordnance) (submitted)	25,347.00		
		76,347.00	5,132.82
Navy-yard, Norfolk, Va.:			
For towards enlargement of electric plant and concentration of steam (submitted)	20,000.00		
For extension of quay wall (submitted)	50,000.00		
For ship fitters' shop, new dry dock (construction and repair) (submitted)	40,000.00		
For extending railroad tracks for traveling crane (submitted)	13,000.00		
For steel stand pipe (270,000 gallons) (submitted)	13,000.00		
For grading and paving, to continue (submitted)	10,000.00		
		146,000.00	130,000.00
Naval station, Port Royal, S. C.:			
For quay wall (submitted)	15,000.00		
For repair shop for steam engineering	50,000.00		
		65,000.00	11.837.13
Navy-yard, Mare Island, Cal.:			
For storage shed for lumber (construction and repair) (submitted)	28,000.00		
For coal cylinders (submitted)	43,000.00		
For extending quay wall (submitted)	40,000.00		
For shelter roof for boats (submitted)	14,300.00		
For plumbers', tinners', and paint shop (construction and repair) (submitted)	22,500.00		
For house for civil employees (submitted)	10,000.00		
For apartment house for officers (submitted)	30,000.00		
For bath house at U. S. R. S. Independence (submitted)	1,621.00		
For wash house and drawing room, U. S. R. S. Independence (submitted)	3,000.00		
For wharf at U. S. R. S. Independence (submitted)	2,800.00		
For extension of oil house (submitted)	8,600.00		
For sidewalks and roads (submitted)	7,000.00		
For extension of electric system (submitted)	15,000.00		
For tools for yards and docks shop (submitted)	6,750.00		
		232,571.00	216,785.00

Estimates of appropriations required for the service of the fiscal year ending June 30, 1899, by the Bureau of Yards and Docks, Navy Department—Continued.

Detailed objects of expenditure, and explanations.	Estimated amount which will be required for each detailed object of expenditure.	Total amount to be appropriated under each head of appropriation.	Amount appropriated for the current fiscal year ending June 30, 1898.
NAVY-YARDS AND STATIONS—continued.			
Naval station, Puget Sound, Wash.:			
For electric-light plant (submitted)	$9,800.00		
For extension of water system (submitted)	4,007.00		
For steam capstans for dry dock (submitted)	6,325.00		
For steam engineering shop and boiler house (submitted)	56,000.00		
For fencing about station (submitted)	13,800.00		
For continuing clearing, grading, and stumping (submitted)	6,000.00		
For yard scow (submitted)	2,800.00		
For oil house (submitted)	1,700.00		
For dredging (submitted)	20,00.000		
For establishing telegraphic communication (submitted)	4,000.00		
For quay wall (submitted)	25,000.00		
		$149,432.00	$80,143.62
Housing torpedo vessels:			
For hauling out and housing torpedo vessels at such navy-yards and stations as may be selected (submitted)	225,000.00	225,000.00	....
Repairs to dry dock, Brooklyn, N. Y. (act June 26, 1897)	....	....	100,000.00
Naval station, Key West, Fla. (act Mar. 3, 1897)	....	....	35,000.00
Coaling wharf at Japonski Island, Alaska:			
For coaling wharf (submitted)	5,000.00	5,000.00	....
		1,554,887.00	939,620.57
Repairs and preservation, navy-yards:			
For repairs and preservation at navy-yards and stations (act Mar. 3, 1897)	400,000.00	400,000.00	400,000.00
		1,954,887.00	1,339,620.57

NAVY-YARD, *New York, May 17, 1897.*

SIR: I respectfully recommend that Master of Tugs F. W. Bell may be appointed yard pilot for this navy-yard, at a salary of $2,000 a year. Captain Bell has been employed here since July 3, 1891, and has, in addition to his ordinary duties as master of tugs, safely piloted to and from the navy-yard a large number of vessels of the Navy, thereby saving the Government a large amount of pilotage.

The tides and eddies at the entrance of the Wallabout Channel are very embarrassing to a stranger and can be safely encountered only at slack water, the time of which varies according to the wind and weather, and it requires the knowledge of an expert to handle, among these varying currents, deep-draft vessels like our battle ships and long ships like the *Brooklyn* and to bring them to the navy-yard docks without injury.

I consider, therefore, that it would be a great advantage to the Government to secure the services of Captain Bell as general yard pilot. His knowledge of the coast is also extensive, as he has frequently taken the *Nina* to attend trial trips off Cape Ann.

I inclose herewith a number of recommendations from commanding officers of vessels under whom he has served as pilot.

Very respectfully,

FRANCIS J. HIGGINSON,
Captain, U. S. N., Captain of the Yard.

The COMMANDANT,
Navy-Yard and Station, New York.

[First indorsement.]

NAVY-YARD, *New York, May 17, 1897.*

Respectfully forwarded to the Secretary of the Navy.

Master of Tugs F. W. Bell is also a duly licensed master of inland steam vessels and pilot of the same in the waters of bay and harbor of New York, East River, and North River to Rondout.

Mr. Bell is well worthy of every consideration by the Department. He is a thoroughly reliable man in all respects and an exceptionally cool and skillful person in the handling of heavy ships in the waters of New York. His services as a pilot are in great demand by commanding officers of ships coming to and leaving the navy-yard, and each year he has saved large sums to the Government—the pilotage of these ships.

F. M. BUNCE,
Commodore, U. S. N., Commandant, Navy-Yard and Station.

NAVY DEPARTMENT, *Washington, September 15, 1897.*

SIR: Referring to your recommendation for the appointment of F. W. Bell as pilot of the New York Navy-Yard at a salary of $2,000 per annum, I have given the matter consideration, and in view of the importance of the duties of the position have concluded to place in the estimates an item of $2,000 for the pay of a pilot. There is no appropriation at the present time to which this could be properly charged.

Very respectfully,

JOHN D. LONG, *Secretary.*

The COMMANDANT, *Navy-Yard, New York.*

REPORT

OF

THE CHIEF OF THE BUREAU OF EQUIPMENT.

WASHINGTON, D. C., *September 7, 1897.*

SIR: I have the honor to submit the report of this Bureau for the fiscal year ending June 30, 1897, with the estimates for the fiscal year ending June 30, 1899.

The report includes the work of the Bureau and of the Naval Observatory, including the Nautical Almanac Office.

The following were the appropriations for the Bureau and its branches under the naval bill:

Equipment of vessels	$1,312,147
Contingent equipment	12,000
Civil establishment	19,625
Increase of the Navy, equipment	237,000
Naval Observatory	11,800

The appropriation for contingent equipment not being sufficient, an additional amount of $3,000 was appropriated in the deficiency act, approved July 10, 1897.

The following was manufactured at the Boston Navy-Yard, at a cost for labor of $57,122.33, and for material of $114,361.36:

	Pounds.
In the ropewalk:	
Manila rope	368,098
Hemp rope	37,189
Wire rope	58,066
Boltrope	29,134
Seizing	11,140
Spun yarn	11,899
Marline, cod line, ratline, houseline, signal halyards, etc	54,591
In the rolling mill:	
Iron rolled	472,256
Forging billets	150,070
Steel	5,524
In the machine shop:	
Galley parts	6,027
Metal scrapers	1,008
Miscellaneous articles	806
In the forge shop:	
Hang chains	324,652
Anchors manufactured or altered	54,432
Shackles, grapnels, and miscellaneous articles	33,980

There was expended in the sail lofts of the several navy-yards the sum of $66,309.76 for labor and $42,690.30 for material, and in the rigging lofts $33,782.43 for labor and $18,401.15 for material.

Hemp for the manufacture of cordage of all kinds, to the amount of $56,155.58, was purchased during the year as follows:

	Tons.	Cost.
American hemp	$50\frac{1418}{2240}$	$10, 208. 25
Russian hemp	$49\frac{1538}{2240}$	8, 670. 08
Manila hemp	$233\frac{492}{2240}$	37, 277. 25
Total	$333\frac{1208}{2240}$	56, 155. 58

The following material was on hand at the Boston Navy-Yard at the close of the year for the manufacture of rope:

	Pounds.
American hemp	193, 194
Manila hemp	104, 348
Russian hemp	70, 800
Wire	156, 517
Hide (cut yarns)	4, 230

The sum of $397,158.77 was expended at the several navy-yards for labor in equipping vessels.

There was expended abroad for equipment supplies the sum of $449,956.07. Of this amount $375,840.63 was expended for 56,268 tons of coal, an average of $6.68 per ton.

A total of 138,318 tons of coal, costing $655,921.72, was purchased during this year, as against 116,903 tons, costing $620,131.38, during the fiscal year ending June 30, 1896; 56,268 tons were purchased abroad in 1897, as against 61,741 in 1896, at an average decreased cost per ton in 1897 of 17 cents.

The average cost of all coal purchased in 1897 was $4.75, against $5.30 in 1896.

There was purchased at home 82,051 tons of coal, costing $280,091.09, an average of $3.41, of which quantity 71,787 tons was purchased on the Atlantic Coast, at an average cost of $2.09 per ton, and 10,264 tons on the Pacific Coast, at an average cost of $7.31, a decrease in average cost on the Atlantic Coast in 1897 over that of 1896 of 90 cents, and an increase of 30 cents on the Pacific Coast.

Of a total of 115,723 tons of coal used by the new ships of the Navy, 52,614 tons, or 45 per cent, was for steaming purposes, and 63,109 tons, or 55 per cent, was for auxiliary purposes, under which latter head are included electric lighting, distilling, heating, flushing water closets, cooking, ventilating, and steam cutter service. This percentage is the same as last year for both purposes.

The following list gives the expenditure for steaming and auxiliary purposes for each cruising ship:

Vessel.	Moving ship.	Distilling.	Pumps.	Lighting.	Heating.	Galley.	Steam-boats.	Ventilating.	Other.
	Tons.	*Tons.*	*Tons.*	*Tons.*	*Tons.*	*Tons.*	*Tons.*	*Tons.*	*Tons.*
Adams	181	135	....	....	16	42	23	....	39
Alliance	144	68	....	....	20	41	7	....	....
Amphitrite	760	162	541	254	81	48	13	110	146
Alert	744	90	20	....	25	47	29	....	....
Boston	804	428	573	809	160	107	38	102	....
Bancroft	439	128	144	151	18	18	7	....	123
Bennington	967	163	92	568	56	50	31	26	....
Brooklyn	1, 177	2, 296 tons used for other purposes. Details not complete.							
Cincinnati	2, 839	773	327	431	64	46	52	240	237
Cushing	165	....	....	....	7	4	....	....	....
Castine	912	83	97	365	60	32	9	149	....
Columbia	2, 423	1, 210	723	2, 201	447	122	63	248	....
Concord	82	9	32	20	2	4	1	2	....
Detroit	2, 269	453	289	631	69	55	29	....	....

Expenditure for steaming and auxiliary purposes—Continued.

Vessel.	Moving ship.	Distilling.	Pumps.	Lighting.	Heating.	Galley.	Steamboats.	Ventilating.	Other.
	Tons.	*Tons.*	*Tons.*	*Tons.*	*Tons.*	*Tons.*	*Tons.*	*Tons.*	*Tons.*
Dolphin	783	146	148	257	....	52	30	272	340
Essex	92	167	....	....	26	46	10	....	....
Fern	329	32	21	....	19	18	....	....	110
Indiana	2,550	475	860	1,732	422	163	91	261	....
Katahdin	172	20	....	151	83	17	1	97	....
Lancaster	178	196	68	15	68	97	68	....	....
Machias	677	122	128	475	18	32	60	....	....
Maine	1,630	457	160	1,386	232	130	62	161	....
Marblehead	1,950	158	362	482	41	44	7	164	104
Marion	868	184	30	....	12	57	49	....	....
Massachusetts	2,083	3,744 tons used for other purposes. Details not complete.							
Michigan	387	....	....	....	118	28	9	....	....
Minneapolis	3,344	563	414	1,140	68	151	187	284	74
Monocacy	185	56	....	....	165	93	6	....	....
Monterey	672	258	271	407	68	55	37	207	....
Montgomery	1,106	299	1,062	557	107	63	42	....	....
Monadnock	1,016	244	216	1,042	....	65	57	130	304
Newark	2,312	248	629	291	28	67	32	....	....
New York	2,090	831	1,049	1,431	453	88	123	1,064	....
Oregon	3,296	170	26	302	201	119	85	102	....
Olympia	2,062	1,123	124	1,228	50	111	136	206	....
Pinta	77	29	....	....	200	56	....	....	....
Philadelphia	916	2,231 tons used for other purposes. Details not complete.							
Petrel	341	23	15	246	51	22	8	....	....
Puritan	531	1,308 tons used for other purposes. Details not complete.							
Porter	324	30	49	2	12	14	....	....	....
Raleigh	3,801	388	411	683	....	118	34	....	387
San Francisco	1,565	588	198	566	75	158	32	63	....
Terror	721	1,964 tons used for other purposes. Details not complete.							
Texas	2,059	2,574 tons used for other purposes. Details not complete.							
Thetis	622	68	16	....	5	43	70	....	21
Vesuvius	509	45	....	21	24	15	....	....	222
Wilmington	207	19	26	9	....	4	3	17	....
Yantic	472	87	2	....	26	48	30	....	....
Yorktown	916	437	222	440	99	131	32	....	....

As I am about leaving office it may not be amiss to recapitulate the more important work of the past four years toward perfecting the equipment material of the service.

The electric-lighting installations already in our later ships and those to go in the ships now building are believed to be certainly equal to any elsewhere, if not in advance. There can be no question in my mind of the great utility of the extension of the application of electricity to all the minor work of the ship. Its perfect controllability, its cleanliness, the absence of heat, the absence of danger if the connections be cut, which exist in the case of steam pipes, are advantages which can not be overlooked.

I can not too strongly urge the increase of pay for those men connected with the electrical service of the ship. This service is more continuous, more difficult, and requires more expert knowledge than falls to the lot of any other enlisted men. I would say, too, that the force we employ is largely inferior in numbers to that employed in foreign services. The following is a comparison of two ships of the same class, the *Iowa* of our service and the *Brennus* of the French—the former with an output of 96 K. W. and the latter with an output of 128 K. W., but with the same number of generating sets in each:

Iowa.	*Brennus.*
The navigator (in charge).	1 lieutenant.
2 first-class gunners' mates.	1 ensign.
2 second-class gunners' mates.	1 warrant officer.
	2 chief petty officers.
	12 petty officers.
	11 seaman gunners.

Our men in charge of this duty, the seaman-gunner class, are a most valuable force. They are gunners, electricians, seamen, and engine drivers; they can be taken from the dynamo room and put in charge of a boat or diverted to any other duty aboard ship, and their treatment should be of a character to prevent their disappearance from the Navy owing to superior inducements offered them ashore.

In other equipment, the quality of chain cables has been much improved, the Bureau having finally succeeded, after much effort and long delay, in obtaining a higher quality of iron than that we have heretofore been able to get.

The Ardois signal system has been much improved. The Very night signals and method of firing have also been much altered in the line of safety and in the greater height to which they can be thrown by the adoption of a new pistol.

Aluminum binnacles have been introduced and changes made in the system of compensation, as will be seen by the report of the officer in charge of the compass office, by which there is a great saving of weight and space.

A new and improved form of life belts was got out by the Bureau, and one is now furnished for every officer and man aboard ship, instead of but for a small percentage as formerly.

Specifications for navigating instruments have been made very thorough and a new method of purchasing sextants has been adopted, with the Department's approval, by which the quality of sextants will undoubtedly be advanced.

A new and very complete outfit of spyglasses has been adopted and supplied.

Tableware and table linen are now supplied to all officers' messes and the mess outfit for the crew, so that a ship on going into commission is at once ready for occupancy and messing aboard. Apart from any question of convenience the disciplinary effect is excellent, the long interval formerly necessary for officers' messes to get into running order being thus avoided.

A homing-pigeon service has been established at Portsmouth, N. H., Newport, New York, Norfolk, Key West, and Mare Island, which promises well. There are times, of course, when such a service might be of inestimable value.

The Bureau has given great attention to the question of testing coals. There has been a continuous series of tests for evaporative efficiency carried on, this testing being done at the New York and Mare Island yards, the only two fitted for the work, and a very large series of chemical tests has been made and continues to be made at the Washington yard. Ships are obliged to test and report on tabulated forms upon the quality of all coals taken aboard. The data thus obtained is now very extensive, covering probably a larger field than has ever been covered before in such matters. These reports have been published for the last two years and form a valuable volume of reference.

I am of opinion that we should use the best coal obtainable, whenever the price is reasonable in comparison with that of other coals. It may be said in a general way that the best coal is the cheapest coal, as it gives a greater steaming radius, is easier to fire, causes less injury to boilers and uptakes, and requires a smaller force to handle.

I would again urge the building of a coal barge for rapid coaling, by which as much as 150 tons of coal may be delivered per hour. The coaling of ships, if such a barge could be supplied at our more important stations, would not only lessen the heavy work thrown upon the men, lessen the injury to machinery and ships' fittings which comes from extending the coaling sometimes through several days, but it might be of vital importance to us in certain exigencies to coal more rapidly than is possible under our present arrangements. Estimates for one such barge are submitted, as also for two lighters for supplying water and removing ashes, the building of which is believed to be in the line of economy.

The following is the report of the naval inspector of electric lighting:

NAVY DEPARTMENT, BUREAU OF EQUIPMENT,
Washington, D. C., September 3, 1897.

SIR: I have the honor to submit the following report:

The electric plants of the following ships have been completed and are now in operation, viz: *Oregon*, *Brooklyn*, *Iowa*, *Puritan*, *Nashville*, *Wilmington*, *Helena*, *Wheeling*, and *Marietta*, and in torpedo boats *Dupont*, *Foote*, *Rodgers*, and *Porter*. The installation of the plants of torpedo boats *Winslow* and *Rowan* has been carried on so as to keep pace with the work of construction. Light lists and wiring plans of the *Illinois*, *Wisconsin*, and *Alabama* have been prepared; also for torpedo boats *Dahlgren*, *T. A. Craven*, *Farragut*, and *Morris*. Light lists and wiring plans for the *Chicago* and *Hartford* are being prepared.

As the turrets, ammunition hoists, boat cranes, winches, ventilating blowers, and tools for ordnance workshop are to be operated by means of electric motors, in addition to the incandescent and search lights, the generating plant for the *Kearsarge* and *Kentucky* will consist of seven 50 kilo-watts sets, giving a total output of 350 kilo-watts, being more than double the output of any other vessel in the Navy. The three-wire system of electric conductors will be introduced for the first time on board our men of war, and the current will be distributed from one main and two auxiliary switch boards fitted with automatic switches. Plans have been submitted to increase the electric output of the *Illinois*, *Wisconsin*, and *Alabama* to 196 kilo-watts, two of the generators to be of 50 kilo-watts and three of 32 kilo-watts.

The switch-board connection on board of these battleships is so designed that each and all of the generators will be available for lighting and motor service.

The plants of ships on active service have been kept in repair and have in general operated satisfactorily. Those of the *Baltimore*, *Newark*, *Miantonomoh*, and *Katahdin* are receiving a thorough overhauling, while the ships are temporarily out of commission, and the repairs in the *Petrel*, *Concord*, and *Vesuvius* have been completed.

Much attention has been given to the improvement of the electrical apparatus and material used in ships' installation, and a constant and decided advance has been obtained over the earlier appliances in every branch, while the cost has steadily decreased. A number of new devices have been tried during the year and those which have given promise of being useful have been adopted.

Electric heaters have been issued for trial in one of the battleships.

The apparatus for signaling to close water-tight doors installed in the *Iowa* has proved a success. It consists of a number of small shrill whistles, located at different points under the protective deck, each of which is actuated by a solenoid connected in multiple to the dynamo circuit and started by switch on the bridge. Steps are being taken to further improve on this system.

The Telephotos night signal set, with a similar display of lights as the Ardois, but with a different and improved keyboard, has been adopted and has proved satisfactory.

The specifications for generating sets, electric material, installation of electric plants, and interior communications on board vessels of the Navy, have been carefully revised.

A new type of generating set, consisting of a tandem compound, vertical engine, directly connected on the same bedplate with a multipolar, slotted-core armature dynamo, has been experimented with and has given promising results. The engine is much more economical than the simple engines now in use, and the dynamo embodies all the latest improvements.

The work of inspector of equipment at Newport News, Va., and at the Columbian Iron Works, Baltimore, Md., has been performed by Lieut. Commander Wainwright Kellogg, U. S. N., and myself, in addition to the regular office duties.

In concluding this report, I would earnestly recommend that men in the seaman branch, when serving in the dynamo room of ships, be put on the same footing as regards pay with those in the artificer branch, as their work is equally arduous and requires an equal amount of knowledge and skill.

Respectfully submitted.

W. MAYNARD,
Commander, United States Navy.

The CHIEF OF BUREAU OF EQUIPMENT.

The Superintendent of Compasses reports as follows:

BUREAU OF EQUIPMENT, NAVY DEPARTMENT,
September 7, 1897.

SIR: I have the honor to submit the following report of the work pertaining to the compass office, accomplished during the past year:

The compass reports, reports of magnetic surveys, and observations relating to compass work, received from vessels in commission, have been examined and placed on file. One "new Baker compass" has been submitted for examination and trial. After several tests were made with it in the office it was deemed worthy of a trial on board ship and, accordingly, has been placed on board the U. S. S. *Fern* for trial under service conditions and report. Parts of new compasses and other instruments have been examined in detail in the office, and final examinations of the completed instruments made by an officer from this office at the works of the manufacturers.

Several changes have been made in the service binnacle, resulting in the binnacle known as Type V. These changes consist briefly: (1) In the substitution of soft-iron rods or bolts for quadrantal deviation correctors, instead of the spheres and boxes of chain heretofore employed. This change was referred to in my last report. (2) In the substitution of worm and worm wheel for the ratchet and pawl in the mechanism actuating the tray bearing the magnets used for correcting semicircular deviation. This change results in the tray being locked in its position so that firing of main battery guns may not destroy the compensation. (3) In fitting a glass door in place of the fixed glass plate in afterpart of the hood, and in removing the stops which limited the movement in azimuth of the hood. These changes permit bearings to be taken in any direction and in any weather without removing the binnacle hood, so far as the binnacle and its attachments are concerned.

A modification in the 2½-inch boat compass, by which a buoyant card is substituted for the nonbuoyant lifting card, has been approved, and a number of these compasses are now under construction.

A design for lighting binnacles by electricity has been adopted. Several binnacles have been fitted therewith. No special reports have yet been received from vessels, but it is believed that this method of lighting will prove eminently satisfactory. The lamps fitted to hoods remain as before and may be used whenever, for any reason, electricity may not be available.

Observations for the location, adjustment, and compensation of compasses, and complete or approximate compensations, have been made in the following vessels: *Brooklyn*, *Castine*, *Iowa*, *Vesuvius*, *Puritan*, *Wilmington*, *Helena*, *Annapolis*, *Newark*, *Samoset*, *Porter*, *Dupont*, *Foote*, *Cushing*, *Ericsson;* and approximate locations for compasses have been given, from plans submitted, for vessels now under construction.

New instruments have been supplied as follows: Thirty binnacles, 24 Pelorus D. S., 24 azimuth circles, 12 sets of magnetic instruments, 12 supporting tables, 12 bars and pintle, 80 boat compasses.

The following new instruments are now nearly ready for delivery: Twelve binnacles, 12 peloruses, 12 azimuth circles, and 50 boat compasses.

Repairs to compasses have been made as follows: Forty-five service, 7½ inch; 36 boat, 4 inch. Of the latter 15 have been converted to conning binnacles and compasses, especially intended for use in conning towers, as they are very compact in form and may readily be compensated.

A few officers have received a course of instruction in the practical work of compensation of compasses, a course which should be given to every officer about to take charge, for the first time, of the compasses on board any of our modern ships.

Respectfully submitted.

GILES B. HARBER,
Lieutenant Commander, Superintendent of Compasses.

The CHIEF OF BUREAU OF EQUIPMENT.

The Superintendent of the Naval Observatory reports as follows:

UNITED STATES NAVAL OBSERVATORY,
Washington, D. C., July 15, 1897.

SIR: I have the honor to submit herewith the report of the operations of the United States Naval Observatory for the fiscal year ending June 30, 1897.

DEPARTMENT OF ASTRONOMICAL OBSERVATIONS.

The Astronomical Director reports as follows:

THE 26-INCH EQUATORIAL TELESCOPE.

[Prof. STIMSON J. BROWN, U. S. N., in charge.]

As usual, this instrument has been employed almost exclusively on faint and difficult objects which could not well be reached by smaller telescopes. The work accomplished during the year ending June 30, 1897, was as follows:

Brook's periodic comet, 1889 V = 1896 VI, was observed twenty-three times.

Giacobini's comet, 1896 V, was observed five times.

Perrine's comet, 1896 f = 1897 I, was observed on November 6, 8, and 9. On the latter date it was visible in the 5-inch finder, and therefore the work of making further observations on it was transferred to the 12-inch equatorial.

Perrine's periodic comet, 1896 VII, was observed three times.

The observations of these four comets have all been completely reduced and published in the volumes of the Astronomical Journal.

During the months of May and June an attempt was made to find D'Arrest's comet, the ephemeris used having been carried forward from the last apparition, but the search proved unsuccessful, partly on account of unfavorable weather and partly because the motion of the comet kept it continually on the verge of the morning twilight.

The satellites of Mars were observed whenever possible from November 18 to December 28, 1896, and during that period 24 observations of Deimos and 6 observations of Phobos were made by the method of position angles and distances.

On March 29, 1897, observations were begun on what is intended to be a general revision of the more important double stars, such as well-known binaries, suspected binaries, and new or difficult doubles. Although nearly every subsequent clear night, except Sundays, has been utilized for that purpose, only 98 observations have been secured, while an equal number of attempts proved futile. Out of thirty-nine nights of actual work fifteen proved fairly good, but on only three of them could so high a power as 888 be used. On the remaining twenty-four nights observations were either impossible or limited to objects which would have been easily within reach of a 12-inch telescope under favorable conditions of weather. As a part of this work, Sirius and Procyon were examined in the early twilight, but the condition of the sky was unfavorable, and nothing was seen of their companions.

Last January the Moon passed very near to Mars, and arrangements were made to secure photographs of the spectra of the two bodies under nearly identical conditions. Trial spectra were obtained on both objects, but a long period of cloudy weather rendered the bodies invisible at the time of the January conjunction, and when the February conjunction arrived Mars was so far from the Earth that the scheme was impracticable.

The diameters of Mercury and Venus have been measured with the filar micrometer whenever sufficiently favorable conditions occurred. The observations of Mercury have little value on account of the unsteadiness of the images, but on three occasions the images of Venus were very fine for daylight observations, and as the resulting diameter of the planet at distance unity they gave, respectively, 17.60″, 17.65″, and 17.56″.

In addition to the usual routine office work the observations of Titan and Iapetus for 1894, 1895, and 1896 have been completely reduced, and the solution of the normal equations for the correction of the elements has been finished, but as the work has all been done by Professor Brown he thinks it should yet be checked by some one else, in order to guard against the possibility of systematic errors in the computed coordinates and in the coefficients of the observation equations. There were 150 equations of condition, equally distributed between the three years, and also between the two coordinates $\Delta\alpha$ and $\Delta\delta$. The probable error of a single observation is ±0.313″, and the resulting mass of Saturn is, from Titan 1:3490.3, and from Iapetus 1:3[illegible].2.

The 26-inch telescope has r[illegible] mi[illegible] throughout the year, and no changes whatever have been made in it. On August 28, 1896, the contact piece for automatically stopping the elevating floor when it reaches its highest point was accidentally broken, and on September 9 it was replaced by a new casting. As originally arranged, the water pressure for raising and lowering the elevating floor was obtained from a pair of steam pumps situated in the basement of the main building of the Observatory. This was inconvenient, because 60 pounds of steam was required to work the pumps, and that pressure seldom existed in the boilers unless it was specially gotten up for the purpose. When the water from the new high-service reservoir was laid on to the city mains it was found that the pressure in them was about 74 pounds per square inch, and although that was 16 pounds less than the pressure usually given by the steam pumps, the Superintendent of the Observatory suggested that it might suffice to work both the elevating floor of the 26-inch telescope and the elevator in the main building. This suggestion having been confirmed by a rough calculation, on December 7, 1896, the city water pipes were connected with the elevating apparatus in question, and although the floors rose rather more slowly than under the action of the steam pumps, they have been worked in that way ever since because the diminution of speed is more than compensated for by the circumstance that the water pressure is always available.

Ever since the removal from the old Naval Observatory, the chronograph belonging to the meridian instrument Stackpole & Brother, No. 1502, has been used in connection with the 26-inch equatorial, because the chronograph properly belonging to the latter instrument required a space of 106 inches for the fall of its weight, and that could not conveniently be obtained in the new buildings. During the present summer the last-mentioned chronograph was put into the hands of Messrs. Warren & Swasey, with instructions to reduce the fall of its weight to 36 inches. That having been done, the instrument was returned to the Observatory on June 14, 1897, and will be brought into use as soon as possible.

THE 12-INCH EQUATORIAL TELESCOPE.

[Prof. EDGAR FRISBY, U. S. N., in charge.]

The work done with this telescope during the year ending June 30, 1897, was as follows:

Thirty-three observations of asteroids were made, namely, 3 of Flora (8), 2 of Psyche (16), 3 of Nemausa (51), 1 of Sappho (80), 2 of Sylvia (87), 2 of Amalthea (113), 3 of Electra (130), 3 of Ismene (190), 6 of Nephthys (287), 1 of (346), 5 of (386), and 2 of (387).

Perrine's comet, 1896 f=1897 I, was observed six times.

Perrine's periodic comet, 1896 g=1896 VII, was observed six times.

The positions of two stars were measured for use in connection with the work of the 26-inch telescope.

Eight occultations of stars by the moon and 5 eclipses of Jupiter's satellites were observed.

The diameter of Venus was measured on seven different days, and the Sun was examined for spots on four days.

Nearly all of the above-mentioned observations are reduced up to date, and those requiring prompt publication have been printed in the Astronomical Journal. In addition to this, Professor Frisby has found time to compute an ephemeris of the rising and setting of the moon at Washington for the year 1897, and also to do a great deal of work on the reduction of the photographs of the transit of Mercury of November 10, 1894.

On Tuesday and Thursday evenings of each week, weather permitting, the 12-inch telescope has been used for the exhibition of celestial objects to visitors. During the year 3,260 permits were issued to such visitors by the Observatory, and a large additional number were issued by the Bureau of Equipment.

During the last twelve months certain additions and repairs were made to this telescope by Mr. M. E. Kahler, as follows:

September 3, 1896, a new leather cap was provided for the finder. September 8 a clamp was provided for the draw tube of the finder, and, as the diaphragms in the sliding tube of the main telescope cut off the outer edge of the field when low-powered Huygenian eyepieces were employed, they were removed and replaced by larger ones. The object glasses furnished with the long microscopes for reading the right ascension and declination fine circles gave very bad definition on account of excessive spherical aberration, and to remedy that defect they were replaced by new objectives ground to curves specially computed by the Astronomical Director, the change being made in the declination microscopes on December 1, and in the right ascension microscopes on December 26. About the middle of February, 1897, the machinery of the dials for indicating the position of the telescope got slightly out of order, and on February 18 it was taken down, cleaned, oiled, and repaired.

THE 9.14-INCH TRANSIT CIRCLE.

[Assistant Astronomer AARON N. SKINNER, in charge.]

In the work with this instrument Assistant Astronomer Skinner has been aided during the year, for the periods specified, by the following-named gentlemen:

Assistant Astronomer H. M. Paul to February 15, 1897, when he was transferred to the time service; Mr. Theo I. King throughout the year, in the grade of computer until April 20, 1897, and subsequently in the grade of assistant astronomer; Computer Frank B. Littell until September 21, 1896, when he resigned, and after June 19, 1897, when he was reinstated; Computer E. A. Boeger throughout the year; Computer G. K. Lawton from the date of his appointment, October 20, 1896. Since March 23, 1897, Computer William M. Brown has aided in the observing, but not in the computing.

As the observations for the German Astronomical Society's zone, lying between 13° 50′ and 18° 10′ of south declination, were substantially completed last year, while the reductions are still far in arrears, it was thought best to limit the work of the transit circle during the present year to observations of the Sun, Moon, and planets, together with such stars as were wanted for special purposes, and the minimum number of Ephemeris stars necessary for determining instrumental constants.

The observations actually made during the twelve months ending June 30, 1897, were as follows:

Stars required for completing the zone $-13° 50'$ to $-18° 10'$, 435; zero stars for zones, 148; American Ephemeris stars, 2,832; miscellaneous stars, 109; wire interval stars, 73; Sun, 177; Moon, 122; Mercury, 87; Venus, 140; Mars, 44; Jupiter, 45; Saturn, 59; Uranus, 58; Neptune, 39; Flora (8), 6; Psyche (16), 6; Nen [illegible]sa (51), 1[illegible] ho (80), 4; (346), 7. Total, 4,404.

In compliance with special requests, the positions of certain stars were observed and furnished to the parties named, as follows:

From the zone—13° 50′ to—18° 10′, 88 star places to Dr. J. G. Hagen, S. J., of Georgetown College Observatory, Washington, D. C., and 12 star places to Mr. A. Stichtenoth, of Göttingen, Germany; each of these places depending on two or more observations. To Prof. J. R. Eastman, U. S. N., 4 star places were furnished; to Prof. Edgar Frisby, U. S. N., 2 star places were furnished, each depending upon three observations; and to Prof. S. J. Brown, U. S. N., 9 star places were furnished, each depending upon three to five observations. For Prof. C. L. Doolittle, of the Flower Observatory, Philadelphia, Pa., observations have been made upon 6 stars, but they are not yet reduced.

The state of the reductions of the zone observations is as follows: In right ascension, the interpolation of the clock corrections has been finished, but no progress has been made in the interpolation in the reductions from the date of observation to 1900. In declination, the interpolation of the refractions has been finished, but no progress has been made in the interpolation of the reductions from the date of observation to 1900. The work necessary for completing the reductions is as follows: The preparation of the reduction tables for zones 165–182, inclusive; the interpolation of the reductions in right ascension and declination from the date of observation to 1900; the assembling of the observations in the order of right ascensions and the taking of the means; the computation of the annual precessions and secular variations, both in right ascension and in declination.

The state of the reductions of the observations of the Sun, Moon, and planets is as follows: The chronograph sheets have been read to date; the means of the times of transit, microscope readings, and telescope micrometer readings have been taken to May 13, 1897; the observations have been partially entered on the reduction sheets, and a small amount of work has been done on these sheets. The work necessary for the completion of the reductions is as follows: The completion of the means of the times of transit, microscope readings, and telescope micrometer readings; the completion of the entries on the reduction sheets; the reduction on the sheets of all the Sun, Moon, and planet work from October 10, 1894, to date, only a small part of which has been done.

A comparison of this statement with the report of July 1, 1896, shows that the reductions have fallen further into arrears during the last fiscal year. This is due to two facts: First, the computing force attached to the transit circle at the beginning of the year was too small to do the work required of it, and, second, that force was diminished by one man from February 15, 1897, when Assistant Astronomer Paul was transferred to the time service, until June 19, 1897, when Computer Littell was reinstated.

Experience having shown that the meridian mark belonging to the transit circle was considerably inside the principal focus of the lens used for viewing it, an alteration in the position of the mark became necessary. The place which it should occupy having been very carefully determined, a hole was dug in the ground 6 feet square and 6 feet deep. This was filled with concrete, and upon the latter was built a brick pier 35½ inches square and 35½ inches high. The pier was capped with a marble slab 38 inches square and 4½ inches thick, upon which the meridian mark was mounted. The exact distance from the long focus lens to the new meridian mark was found to be 380.0 feet, which is 7.87 feet greater than the distance of the old mark. The new pier was built during the month of October, 1896, and the mark was transferred to it on October 28.

The illumination of the field of the transit circle being unsatisfactory when bright webs were required on a dark ground, a study of the illuminating apparatus was made, and it was concluded that the difficulty might be remedied by substituting for a certain plano-convex lens situated inside the axis of the telescope a lens which should be spherical on one side and cylindrical on the other. The best curves could be determined only by trial, and the first experimental lens made by Mr. M. E. Kahler did not prove sufficiently powerful. A second lens, furnished on January 19, 1897, has both its spherical and its cylindrical surface ground to a radius of 0.60 of an inch, and as it gave very good results it has been used ever since.

During the month of June, 1897, a new clock pier of white Rutland marble, weighing 3.6 tons, and measuring 28 by 32 inches at the base, 24 inches square at the top, and 102 inches high was erected on the east side of the east transit circle room to take the place of the temporary pier which had stood on the west side of that room since June, 1892. At the same time three additional clock piers of Richmond granite, each weighing 2.3 tons, and measuring 25 by 30 inches at the base, 24 inches square at the top, and 75 inches high, were erected in the clock room, but the clocks have not yet been mounted upon any of these four piers.

On September 3, 1896, the outer disk on the head of the zenith distance micrometer of the transit circle was accidentally bent, and was repaired the next day by Mr. Kahler. On May 6, 1897, the same gentleman furnished two collimating eyepieces, one for the main telescope of the transit circle, and the other for the vertical collimator; and on May 20 he furnished dew caps for the objectives of the two horizontal collimators.

THE PRIME VERTICAL TRANSIT INSTRUMENT.

[Assistant Astronomer GEORGE A. HILL, in charge.]

This instrument has been used in connection with the meridian instrument Stackpole & Brother No. 1502 for determining variations of latitude and the constants of aberration and nutation, precisely as described in former reports, except that the stars 40 Aurigæ and 1450 Groombridge have been added in order to increase the possible number of observations at certain seasons of the year.

The number of observations obtained during the twelve months ending June 30, 1897, was as follows: With the prime vertical transit instrument, μ Andromedæ, 17; α Canum Venaticorum, 35; θ Aurigæ, 37; γ Bootis, 30; 40 Aurigæ, 4; Groombridge, 1450, 6; α Lyræ, 111. With the zenith telescope, α Lyræ, 120. Total 360 observations.

All observations made with the prime vertical transit instrument are copied on the reduction sheets up to June 30, 1897, reduced up to March 10, 1897, and transcribed for the printer up to October 15, 1896. The observations made with the zenith telescope are reduced up to October 20, 1896.

The entire series of observations made with the two instruments between July 24, 1893, and October 15, 1896, has been reduced, and the discussion of the observations for the latitude and variation of latitude at this observatory has been published in No. 404 of the Astronomical Journal. The value found for the latitude of the center of the clock room is $+ 38° 55' 13.70'' \pm 0.10''$.

Both instruments have remained in excellent condition throughout the year. In the meridian instrument Stackpole & Brother No. 1502 no change whatever has been made, and in the prime vertical transit instrument only the mirrors employed in reading the striding level have been made a little wider. The latter change was effected on September 18, 1896, and about the same time there was purchased from Mr. Kahler, for the purpose of testing the pivots of the prime vertical transit, one spherometer caliper, of the kind described in the Monthly Notices of the Royal Astronomical Society (London), 1878, volume 38, pages 487–493.

THE TRANSIT CIRCLE STAR CATALOGUE.

[Prof. JOHN R. EASTMAN, United States Navy, in charge.]

In the preparation of this catalogue Professor Eastman has been assisted throughout the year by Mr. F. H. Parsons, temporarily employed for the purpose, and by Computer William M. Brown, who has devoted rather more than two-thirds of his time to the work. During the last twelve months the secular variations of the precessions have been computed and checked, and in order to guard against errors, these quantities, together with the positions of nearly all the stars, have been compared with the results obtained by other authorities. Several weeks were lost in correcting small systematic errors which were introduced into the star places in consequence of an unfortunate verbal statement got from the office of the American Ephemeris in 1896. The annual positions and catalogue places of the standard stars were completed several months ago, and the annual positions and catalogue places of the miscellaneous stars, together with the general introduction to the catalogues, are now nearly ready for the printer.

MISCELLANEOUS MATTERS.

During the year a large amount of work has been done toward the reduction of the photographic observations of the transit of Mercury of November 10, 1894. The greater part of this work is due to Professor Frisby, but Computer William M. Brown and Photographer Charles T. Fellows have also rendered effective services.

While the shutters on the various observing rooms work very satisfactorily under all ordinary circumstances, they have never been quite tight against rain storms with the wind at right angles to the openings in the roofs, and at such times a good deal of water penetrates to the instruments. Furthermore, many of the screws, which hold the zinc lining to the interior sides of the east transit circle room, have worked out, and consequently the sheets have become so much loosened that they present a very dilapidated appearance. These defects require attention.

During the year the following-named articles have been added to the permanent equipment of the Astronomical Department: July 6, 1896, a pair of 16-inch globes mounted on high stands. August 1, a Blickensderfer typewriter, for use in preparing the transit circle star catalogue. October 7, one 6-figure arithmometer.

Very respectfully,

WM. HARKNESS,

Professor of Mathematics, U. S. N., Astronomical Director.

DEPARTMENT OF THE NAUTICAL ALMANAC.

Prof. Simon Newcomb was the Director of the Nautical Almanac from the beginning of the fiscal year until March 12, 1897, upon which date he was placed on the retired list, under the provisions of section 1444, Revised Statutes. Prof. William W. Hendrickson, by order of the Department, succeeded him. On June 30, 1897, Professor Hendrickson was detached and Prof. William Harkness was directed to assume the duties of Director of the Nautical Almanac in addition to his duties as Astronomical Director.

Professor Hendrickson submits the following report:

PRINTING.

The American Ephemeris for 1899 and the American Nautical Almanac for 1900 have been published. Owing to the introduction of new tables, constants, and other data in the Ephemeris for 1900, the printing of that volume has been delayed; 400 pages are now in print, and copy for the remainder is substantially ready for the printer.

Part I, Volume VIII of the Astronomical Papers, "A new determination of the precessional constant," is in press.

DISTRIBUTION.

During the fiscal year ending June 30, 1897, the sale and distribution of publications have been as follows:

Title.	Sold.	Distributed.	Public service.	Total.
American Ephemeris	509	494	568	1, 571
American Nautical Almanac	1, 958	6	302	2, 266
Pacific Coaster's Almanac	1, 254	3	35	1, 292
Astronomical Papers	44	470	1	515

The proceeds of sales, amounting to $1,278.35, have, in compliance with law, been deposited in the Treasury to the account of the appropriation for printing and binding.

NEW TABLES OF THE PLANETS.

Upon the retirement of Prof. Simon Newcomb, in March, 1897, he was appointed to supervise the completion of the tables of the planets, so that this work has been under his direction during the year. Two skilled computers have been employed upon the tables of Uranus and Neptune and the revision of the theory of Mars. Additional computers have also been assigned to this work whenever they could be spared from other office duties.

EPHEMERIS OF THE FIXED STARS.

During the year a part of the office force has been constantly employed in the preparation of an International Catalogue of Standard Stars. The computations have been made in cooperation with the office of the British Nautical Almanac and the French Bureau des Longitudes.

Definitive mean places and annual variations for 1900 have been completed for all the stars given in the American Ephemeris, and these results have been used in the preparation of the volume for 1900. The completion of the catalogue, with the necessary checks and its preparation for the press, will probably occupy the greater portion of another year.

The adoption of new constants in the Ephemeris for 1900 made it necessary to prepare new tables for the reduction of mean to apparent places. These tables, 383 in number, have been completed and have been used in the preparation of the Ephemeris.

Very respectfully,

W. W. HENDRICKSON,
Professor of Mathematics, U. S. N., Director Nautical Almanac.

DEPARTMENT OF NAUTICAL INSTRUMENTS.

Lieut. F. W. Kellogg, U. S. N., the head of this department, was detached July 8, 1896. The next officer in charge was Lieut. C. H. Lyman, U. S. N., from November 20, 1896, until his death, on January 28, 1897. Lieut. T. M. Brumby, U. S. N., was in charge from March 10 until June 1, 1897, when he was ordered on temporary duty at the Naval War College, Newport, R. I.

During the absence of Lieutenant Brumby, Lieutenant-Commander Goodwin has had charge of this department, in addition to his other duties. He reports as follows:

The classes of nautical instruments issued from the Observatory include sextants, octants, spyglasses, binocular glasses, protractors, stadimeters, reading glasses, drawing instruments, theodolites, measuring tapes, plane tables, psychrometers, thermometers, barometers, deck and boat clocks, clinometers, photographic outfits, parallel rulers, magnetic instruments, and other instruments issued to ships for navigating and surveying purposes.

Sextants and octants are inspected for accuracy of dimensions, form and fit of pivot, graduation of arc and vernier, optical performance of telescopes, shade glasses, eccentricity of limb, parallelism of faces of mirrors, weight, quality of workmanship, and conformity in other respects with the specifications.

Spyglasses and binoculars are inspected for power, field, clear aperture, focal distance, and mechanical construction, as set forth in the specifications for the several grades of glasses. Other instruments are inspected for conformity to detailed specifications that are attached to the requisitions calling for them.

The following instruments were rejected as failing to comply with the detailed specifications or required tests:

Stop watches (silver)	23
Three-arm protractor	1
Maximum and minimum thermometer	1
Aneroid barometers	5
Surveying sextants	5
High-grade sextant	1
Mercurial barometers	2
Spyglasses, low power	5
Chronometers	8

The cost of the various instruments purchased during the past fiscal year for issue is $15,546.31. The invoice value of the instruments issued to ships of the Navy during the year is $26,731.26.

The following instruments were received, inspected, and accepted during the year:

Chronometers	4
Binoculars:	
Day	54
Night	150
Spyglasses, low power	46
Sextants, high grade	16
Sextants, surveying	2
Octants	11
Sets, splines, and weights	20
Three-arm protractors	11
Psychrometers	20
Mercurial barometers	20
Clinometers	32
Spyglasses, officer of the deck	125
T-squares	20
Deck clocks	50
Steel tapes	25
Thermometers, air and water	200
Stadimeters (Fiske)	5
Cases drawing instruments	20
Maximum and minimum thermometers	30
Captain's reading glasses	20
Navigator's dividers	20
Parallel rulers	95
Aneroid barometers	15

During the year 3,260 permits have been issued to visitors to visit the Observatory for a view of the heavens through the telescope, and a large additional number were issued by the Bureau of Equipment.

Very respectfully,

WALTON GOODWIN,
Lieutenant-Commander, U. S. N., General Storekeeper.

DEPARTMENT OF CHRONOMETERS AND TIME SERVICE.

Lieut. W. V. Bronaugh, U. S. N., was the head of this department until his detachment from the Observatory on February 20, 1897, and Assistant Astronomer H. M. Paul was in charge until March 31, 1897, when he was succeeded by Lieut. Chas. E. Fox, U. S. N., who has been assisted by Professor Paul since that date.

Lieutenant Fox makes the following report:

The present disposition of all chronometers belonging to the Navy is shown by the following table:

Kind.	In service afloat.	In service on shore.	In store at Mare Island.	At Observatory for issue.	Undergoing repairs.	Awaiting repairs.	Total.
Standards	144	10	35	35	7		231
Hacks	49	21	10	5	1		86
M. T. B. C		5	1	1			7
Sidereal B. C		3	3	3	1		10
Sidereal		1	1		1		3
Thermometric				2	2		4
Pocket				5		1	6

In addition to the above, there are in store 17 comparing watches for issue, 1 for repairs, and 2 for survey; 17 silver-case stop watches and 1 gold-case stop watch for issue; 27 maximum and minimum thermometers for issue, and 4 in use at the Observatory.

During the year 39 standard chronometers, 9 hacks, 9 stop watches, 11 comparing watches, and 11 thermometers have been issued to naval vessels.

The Observatory has received 15 standard chronometers, 2 hacks, and 2 comparing watches from naval vessels, and 1 standard chronometer, 1 hack, and 2 comparing watches from shore stations.

Two standard chronometers have been condemned as such and transferred to the hack list, and 1 hack, 1 comparing watch, and 2 thermometers have been condemned by survey and expended.

The annual trial of repaired chronometers commenced January 1, 1897, and was finished June 15, 1897. Twenty-six standard and 2 sidereal break-circuit chronometers were subjected to trial.

During the same period 10 chronometers submitted for purchase were also subjected to trial.

The following tables give the results of these trials in detail:

Relative number.	Time			Jan. 1 to Jan. 8.	Jan. 9 to Jan. 16.	Jan. 18 to Jan. 25.	Jan. 27 to Feb. 3.	Feb. 4 to Feb. 11.	Feb. 12 to Feb. 19.
	Temperature, Fahrenheit			47.24	54.95	70.3	84.97	90.0	84.85
	Relative humidity, per cent			68.7	69.7	71.8	69.9	69.9	69.8
	Repaired by—	Chronometer number.	Maker.						
1	Negus	1776	T. S. & J. D. Negus	+0.910	+0.561	—0.249	—0.670	—0.386	—0.701
2	Bond	505	Wm. Bond & Son	—0.376	—1.189	—1.570	—0.884	—0.350	—1.059
3	Negus	1764	T. S. & J. D. Negus	+0.124	—0.653	—0.999	+0.044	+0.364	—0.237
4	do	1748	do	—0.019	+0.276	+0.287	+0.151	+0.400	+0.656
5	Bliss	2817	John Bliss & Co	+0.410	+0.204	—0.070	—0.456	—0.207	—0.523
6	do	2851	do	—0.376	—1.010	—1.427	—1.277	—1.171	—1.273
7	Negus	1444	T. S. & J. D. Negus	+1.339	+0.610	—0.177	+0.473	+0.900	—0.023
8	do	1519 S. B. C.	do	—0.106	—1.085	—1.067	—0.046	+0.630	—0.041
9	Bond	221	Wm. Bond & Son	—1.197	—1.367	—1.784	—1.849	—1.743	—1.951
10	Negus	1787	T. S. & J. D. Negus	—1.911	—1.939	—2.177	—1.634	—1.031	—1.451
11	Bliss	464	Usher & Cole	+0.339	—0.046	—0.356	+0.473	+0.971	+0.727
12	do	2792	John Bliss & Co	—0.233	—0.189	+0.287	+0.973	+1.543	+1.406
13	Heinrich	1007	H. H. Heinrich	+1.553	+0.419	+0.144	+1.223	+1.900	+1.334
14	Negus	1259	T. S. & J. D. Negus	+0.481	—0.328	—0.749	+0.651	+1.507	+0.656
15	do	1762	do	+1.410	+0.561	+0.109	+1.187	+1.900	+1.331
16	do	1636	do	+1.267	+0.490	+0.251	+1.223	+1.900	+1.406
17	do	1536 S. B. C.	do	+1.539	+0.918	+0.600	+2.419	+3.344	+2.707
18	do	1267	do	+1.731	+0.169	—0.784	—0.849	+0.150	—0.344
19	do	1452	do	+1.339	+0.276	—0.784	—0.491	+0.079	—0.237
20	do	1772	do	—0.876	—1.046	—0.999	—0.563	—1.171	—2.023
21	do	509	Wm. Bond & Son	+4.196	+3.490	+3.573	+4.366	+5.150	+4.691
22	do	1448	T. S. & J. D. Negus	—0.126	—0.974	—1.213	+0.223	+1.257	+0.799
23	Bliss	2381	John Poole	+1.410	+0.276	—0.927	—0.349	—0.064	—0.523
24	Bond	504	Wm. Bond & Son	—2.804	—1.581	—0.106	+0.187	—0.064	—0.273
25	Negus	1189	T. S. & J. D. Negus	+1.553	+0.526	+1.823	+3.080	+2.007	+2.870
26	do	1268	do	+0.660	—0.653	—1.999	—0.813	+0.543	+0.191
27	Bond	272	Wm. Bond & Son	+0.839	+0.776	+0.823	+0.973	+1.793	+2.191
28	Bliss	25568	M. F. Dent	+0.803	—0.653	—0.677	+0.473	—0.207	+0.477
1		1890	T. S. & J. D. Negus	—0.090	—1.081	—1.641	—0.777	—0.207	—0.880
2		1754	do	+3.017	+2.298	+1.930	+2.901	+3.579	+2.906
3		1872	do	+2.374	+1.454	+0.751	+1.651	+2.114	+1.191
4		1810	do	+3.910	+2.347	+1.037	+2.294	+2.757	+2.156
5		1021	H. H. Heinrich	—4.019	—4.453	—5.284	—4.491	—3.493	—4.201
6		994	do	—1.590	—1.831	—2.106	—1.920	—2.029	—3.201
7		1849	T. S. & J. D. Negus	+1.767	+0.490	—0.499	—0.456	—0.493	—1.166
8		1833	do	—0.019	—0.974	—2.034	—0.491	+0.543	—0.023
9		1874	do	+1.660	+1.133	+0.287	+0.901	+1.150	+0.370
10		1873	do	+2.017	+0.990	+0.251	+1.044	+1.293	+0.191

Record of trial of repaired chronometers—Continued.

Relative number.	Time			Feb. 21 to Feb. 28.	Mar. 3 to Mar. 10.	Mar. 13 to Mar. 20.	Mar. 23 to Mar. 30.	Mar. 30 to Apr. 6.	Apr. 6 to Apr. 13.
	Temperature, Fahrenheit			69.81	54.57	45.1	66.55	66.15	68.72
	Relative humidity, per cent			68.6	65.2	72.4	53.4	49.0	51.7
	Repaired by—	Chronometer number.	Maker.						
1	Negus	1776	T. S. & J. D. Negus	−0.413	+0.133	+0.691	−0.049	−0.026	−0.247
2	Bond	505	Wm. Bond & Son	−1.699	−1.117	+0.227	−1.691	−1.561	−1.926
3	Negus	1764	T. S. & J. D. Negus	−0.770	−0.331	+0.691	−1.227	−1.383	−1.426
4	...do	1748	.....do	+0.587	+0.919	+0.727	+0.951	+1.117	+1.110
5	Bliss	2817	John Bliss & Co	−0.377	−0.189	+0.299	+0.059	+0.331	+0.217
6	...do	2851	.....do	−0.913	−0.331	+0.334	−0.441	−0.811	−1.069
7	Negus	1444	T. S. & J. D. Negus	−0.377	+0.419	+2.120	−0.370	−0.526	−0.819
8	...do	1519 S. B. C.	.....do	−0.860	−0.390	+0.386	−0.894	−0.806	−0.804
9	Bond	221	Wm. Bond & Son	−1.877	−1.724	−1.666	−1.299	−0.919	−1.069
10	Negus	1787	T. S. & J. D. Negus	−2.449	−1.974	−1.916	−2.584	−2.597	−2.747
11	Bliss	464	Usher & Cole	+0.016	+0.204	−0.309	−0.084	−0.097	−0.176
12	...do	2792	John Bliss & Co	+0.766	+0.454	+0.156	+0.380	+0.296	+0.217
13	Heinrich	1007	H. H. Heinrich	+0.623	+1.240	+2.191	+0.594	+0.546	+0.539
14	Negus	1259	T. S. & J. D. Negus	−0.341	−0.010	+0.834	−0.584	−0.776	−0.819
15	...do	1762	.....do	+0.873	+1.597	+2.549	+0.844	+0.510	+0.146
16	...do	1636	.....do	+0.980	+1.776	+2.049	+1.309	+1.296	+1.253
17	...do	1536 S. B. C.	.....do	+1.533	+1.540	+2.384	+1.071	+1.086	+1.017
18	...do	1267	.....do	−0.056	+1.133	+2.906	−0.441	−0.776	−1.140
19	...do	1452	.....do	+0.051	+1.419	+2.691	−0.156	−0.347	−0.676
20	...do	1772	.....do	−1.949	−0.724	−0.666	−1.763	−1.490	−1.569
21	...do	509	Wm. Bond & Son	+4.373	+4.740	+6.263	+2.987	+2.867	+2.789
22	...do	1448	T. S. & J. D. Negus	+0.087	+0.133	+0.763	−0.120	−0.169	−0.069
23	Bliss	2381	John Poole	−0.520	+1.454	+2.191	−0.084	−0.383	−0.604
24	Bond	504	Wm. Bond & Son	−0.591	−2.903	−3.666	−1.941	−2.204	−2.033
25	Negus	1189	T. S. & J. D. Negus	+1.873	+2.454	+3.299	+1.630	+1.903	+1.789
26	...do	1268	.....do	−0.449	+0.633	+1.906	−0.691	−0.169	−0.354
27	Bond	272	Wm. Bond & Son	+1.480	+2.347	+2.906	+1.523	+1.260	+1.181
28	Bliss	25568	M. F. Dent	+1.123	+1.811	+2.441	+0.558	+0.760	+0.360
1	....	1890	T. S. & J. D. Negus	−1.591	−1.046	−0.023	−1.620	−1.811	−1.854
2	....	1754	.....do	+2.230	+2.847	+3.513	+2.559	+2.474	+2.431
3	....	1872	.....do	+0.551	+1.669	+2.441	+0.380	+0.403	+0.289
4	....	1810	.....do	+1.909	+2.454	+3.727	+1.166	+1.224	+0.967
5	....	1021	H. H. Heinrich	−5.341	−5.367	−4.880	−5.370	−5.311	−5.283
6	....	994	.....do	−3.091	−2.439	−1.630	−3.727	−3.097	−3.069
7	....	1849	T. S. & J. D. Negus	−1.449	+0.026	+1.191	−0.763	−0.561	−0.783
8	....	1833	.....do	−1.127	−0.260	+0.584	−1.370	−1.383	−1.461
9	....	1874	.....do	−0.591	−0.331	+0.084	−1.084	−1.240	−1.283
10	....	1873	.....do	−1.199	−1.153	−0.451	−1.334	−1.311	−1.390

Relative number.	Time			Apr. 13 to Apr. 20.	Apr. 20 to Apr. 27.	Apr. 27 to May 4.	May 4 to May 11.	May 11 to May 18.	May 18 to May 25.	May 25 to June 1.
	Temperature, Fahrenheit			70.17	68.66	69.46	72.67	71.01	68.39	68.37
	Relative humidity, per cent			52.6	52.4	55.4	56.7	61.2	66.00	62.0
	Repaired by—	Chronometer number.	Maker.							
1	Negus	1776	T. S. & J. D. Negus	−0.253	−0.297	−0.303	−0.414	−0.404	−0.344	−0.301
2	Bond	505	Wm. Bond & Son	−2.003	−1.797	−2.017	−1.986	−2.261	−2.344	−2.444
3	Negus	1764	T. S. & J. D. Negus	−1.574	−1.619	−1.553	−1.414	−1.654	−1.594	−1.659
4	...do	1748	.....do	+0.997	+0.881	+0.840	+0.729	+0.489	+0.620	+0.484
5	Bliss	2817	John Bliss & Co	−0.110	−0.333	−0.410	−0.450	−0.547	−0.380	−0.444
6	.do	2851	.....do	−1.074	−1.119	−1.231	−1.200	−1.047	−1.094	−1.159
7	Negus	1444	T. S. & J. D. Negus	−0.789	−0.869	−0.946	−0.914	−0.869	−1.094	−1.016
8	...do	1519 S. B. C.	.....do	−0.771	−0.889	−0.930	−0.933	−1.173	−1.231	−1.140
9	Bond	221	Wm. Bond & Son	−0.896	−0.797	−0.017	+0.300	+0.274	+0.191	+0.270
10	Negus	1787	T. S. & J. D. Negus	−2.610	−2.940	−2.874	−2.986	−3.154	−3.309	−3.230
11	Bliss	464	Usher & Cole	−0.074	−0.119	−0.089	+0.014	−0.119	−0.201	−0.230
12	...do	2792	John Bliss & Co	+0.140	−0.154	−0.196	−0.093	+0.167	+0.156	+0.199
13	Heinrich.	1007	H. H. Heinrich	+0.604	+0.596	+0.661	+0.836	+0.846	+0.763	+0.806
14	Negus	1259	T. S. & J. D. Negus	−0.753	−0.869	−0.910	−0.700	−0.797	−1.023	−1.087
15	...do	1762	.....do	+0.211	+0.167	+0.483	+0.586	+0.774	+0.691	+0.556
16	...do	1636	.....do	+1.247	+1.203	+1.197	+1.157	+0.989	+1.013	+0.877
17	...do	1536 S. B. C.	.....do	+1.193	+0.969	+1.071	+1.173	+1.150	+1.089	+1.039
18	...do	1267	.....do	−1.217	−1.154	−1.160	−1.236	−1.047	−0.951	−1.087
19	.do	1452	.....do	−0.574	−0.654	−0.803	−1.057	−0.869	−0.809	−0.730
20	...do	1772	.....do	−1.574	−1.583	−1.589	−1.700	−1.797	−1.809	−1.873

Record of trial of repaired chronometers—Continued.

Relative number.	Repaired by—	Chronometer number.	Maker.	Apr. 13 to Apr. 20.	Apr. 20 to Apr. 27.	Apr. 27 to May 4.	May 4 to May 11.	May 11 to May 18.	May 18 to May 25.	May 25 to June 1.
			Temperature, Fahrenheit	70.17	68.66	69.46	72.67	71.01	68.39	68.37
			Relative humidity, per cent	52.6	52.4	55.4	56.7	61.2	66.00	62.0
21	Negus	509	Wm. Bond & Son	+2.819	+2.810	+2.911	+2.800	+2.989	+3.049	+3.127
22	...do	1448	T. S. & J. D. Negus	—0.003	—0.047	—0.053	+0.086	+0.060	—0.166	—0.087
23	Bliss	2381	John Poole	—0.824	—0.833	—0.767	—0.914	—0.690	—0.773	—0.730
24	Bond	504	Wm. Bond & Son	—1.789	—2.083	—2.374	—1.629	—1.547	—2.344	—2.301
25	Negus	1189	T. S. & J. D. Negus	+1.890	+1.774	+1.911	+1.907	+1.631	+1.727	+1.699
26	...do	1268	.....do	—0.360	—0.440	—0.731	—0.843	—0.797	—0.809	—0.659
27	Bond	272	Wm. Bond & Son	+0.676	—0.011	—0.231	—0.700	—0.869	—0.951	—0.337
28	Bliss	25568	M. F. Dent	+0.283	+0.203	+0.090	—0.021	—0.154	—0.451	—0.480
1	....	1890	T. S. & J. D. Negus	—1.931	—2.154	—2.160	—2.129	—2.226	—2.273	—2.373
2	....	1754	.....do	+2.461	+2.310	+2.590	+2.586	+2.310	+2.263	+2.234
3	....	1872	.....do	+0.140	+0.131	—0.017	—0.129	—0.190	—0.309	—0.409
4	....	1810	.....do	+0.961	+0.881	+0.876	+0.907	+1.024	+1.120	+0.984
5	....	1021	H. H. Heinrich	—5.253	—5.226	—5.231	—4.807	—4.333	—4.773	—4.909
6	....	994	.....do	—3.110	—3.190	—3.517	—3.450	—3.476	—3.487	—3.408
7	....	1849	T. S. & J. D. Negus	—0.753	—0.833	—0.839	—0.843	—0.976	—1.094	—1.230
8	....	1833	.....do	—1.610	—1.797	—1.910	—2.021	—2.011	—2.273	—2.623
9	....	1874	.....do	—1.646	—1.726	—1.874	—1.771	—2.011	—2.309	—2.266
10	....	1873	.....do	—1.717	—2.154	—2.089	—2.236	—2.404	—2.666	—2.659

Relative number.	Repaired by—	Chronometer number.	Maker.	June 1 to June 8.	June 8 to June 15.	Temperature of compensation.	Temperature constant.	First trial number.	Final trial number.
			Temperature, Fahrenheit	69.99	73.36				
			Relative humidity, per cent	70.0	71.5				
1	Negus	1776	T. S. & J. D. Negus	—0.296	—0.479	95.16	+0.00068	9.617	9.903
2	Bond	505	Wm. Bond & Son	—2.510	—2.443	68.64	+0.00252	8.130	10.853
3	Negus	1764	T. S. & J. D. Negus	—1.474	—1.514	67.32	+0.00261	10.092	10.884
4	....do	1748	.....do	+0.419	+0.236	81.52	+0.00028	9.663	11.445
5	Bliss	2817	John Bliss & Co	—0.689	—0.871	—20.73	—0.00009	8.746	11.535
6	....do	2851	.....do	—1.260	—1.229	81.64	+0.00085	9.992	12.095
7	Negus	1444	T. S. & J. D. Negus	—0.939	—0.979	71.41	+0.00278	13.055	14.495
8	....do	1519 S. B. C.	.....do	—1.279	—1.351	65.09	+0.00247	13.345	14.533
9	Bond	221	Wm. Bond & Son	+0.204	—0.086	82.62	+0.00046	4.034	14.564
10	Negus	1787	T. S. & J. D. Negus	—3.296	—3.479	67.09	+0.00249	12.594	15.300
11	Bliss	464	Usher & Cole	—0.331	—0.336	66.01	+0.00226	14.937	15.353
12	....do	2792	John Bliss & Co	+0.204	+0.521	41.93	+0.00063	13.764	15.402
13	Heinrich	1007	H. H. Heinrich	+0.847	+0.950	67.33	+0.00296	16.934	17.199
14	Negus	1259	T. S. & J. D. Negus	—1.010	—0.907	65.77	+0.00345	16.878	17.644
15	....do	1762	.....do	+0.490	+0.450	68.83	+0.00299	22.407	24.270
16	....do	1636	.....do	+0.919	+0.950	68.72	+0.00268	24.442	24.918
17	....do	1536 S. B. C.	.....do	+1.080	+1.290	63.57	+0.00358	28.731	28.933
18	....do	1267	.....do	—1.010	—0.979	80.56	+0.00193	28.955	30.568
19	....do	1452	.....do	—0.796	—0.836	77.46	+0.00263	29.632	30.754
20	....do	1772	.....do	—1.939	—2 050	73.86	+0.00168	30.842	31.754
21	....do	509	Wm. Bond & Son	+3.133	+3.021	65.40	+0.00155	34.742	35.516
22	....do	1448	T. S. & J. D. Negus	—0.154	+0.093	64.13	+0.00272	35.550	35.706
23	Bliss	2381	John Poole	—0.760	—1.014	75.01	+0.00412	40.395	41.995
24	Bond	504	Wm. Bond & Son	—2.189	—1.907	80.48	—0.00342	42.251	45.473
25	Negus	1189	T. S. & J. D. Negus	+1.847	+1.486	55.69	+0.00174	50.313	53.625
26	....do	1268	.....do	—0.724	—0.764	70.90	+0.00467	64.894	67.422
27	Bond	272	Wm. Bond & Son	—1.010	—1.764	69.66	+0.00184	44.046	67.472
28	Bliss	25568	M. F. Dent	—0.867	—0.907	70.32	+0.00353	72.391	78.394
1	....	1890	T. S. & J. D. Negus	—2.403	—2.407	68.51	+0.00296	9.404	11.017
2	....	1754	.....do	+2.169	+2.200	67.79	+0.00286	12.388	13.319
3	....	1872	.....do	—0.439	—0.550	70.47	+0.00369	18.996	20.472
4	....	1810	.....do	+0.883	+0.986	70.62	+0.00369	20.676	21.105
5	....	1021	H. H. Heinrich	—5.224	—4.943	66.59	+0.00298	21.837	25.917
6	....	994	.....do	—3.117	—3.229	76.32	+0.00109	26.333	30.019
7	....	1849	T. S. & J. D. Negus	—1.296	—1.336	75.68	+0.00303	29.386	30.308
8	....	1833	.....do	—2.653	—2.764	68.65	+0.00504	41.253	46.005
9	....	1874	.....do	—2.296	—2.086	68.52	+0.00296	42.612	46.552
10	....	1873	.....do	—2.689	—2.586	66.30	+0.00329	103.047	109.240

During the year 24 comparing and 15 stop watches have been subjected to trial, of which 11 comparing and 10 stop watches were purchased.

Thirty maximum and minimum thermometers have also been purchased.

The performance of the three clocks in this department has been satisfactory, and the mean time of noon (seventy-fifth meridian) as determined by observation has been sent out on every day of the year except Sundays. The average error for the year of the noon signals was 0.23 second.

The reports from branch hydrographic offices continue to show that the signal is received with a fair degree of regularity.

Mr. M. E. Porter, computer, has done excellent work as assistant in this office.

Very respectfully,
CHAS. E. FOX,
Lieutenant, U. S. N.,
Head of Department Chronometers and Time Service.

DEPARTMENT OF MAGNETISM AND METEOROLOGY.

Mr. J. N. James, electrician, has had charge of this department during the year. The regular routine observations have been made. Owing to the proximity of the electric railway on the Tennallytown road, the readings of the self-registering instruments have been greatly disturbed, and their value is very questionable.

Unless some means can be devised for protecting these instruments from local disturbances, the work in this department will hardly accomplish the purposes for which they were installed. I shall bring to the attention of my successor the difficulties that have been encountered, with the hope that they may be overcome.

LIBRARY.

Assistant Librarian William D. Horigan has direct charge of the library, under the general supervision of the library committee.

	Volumes.	Pamphlets.	Total.
Contents of library July 1, 1896	15,456	3,304	18,760
Accessions	580	107	687
Contents July 1, 1897	16,036	3,411	19,447

Of the accessions, 292 were received as exchanges and 395 were purchased.

BUILDINGS AND GROUNDS.

Satisfactory progress has been made in the improvements of the grounds and roads.

The two new houses erected for residences of observers are now occupied.

The buildings are generally in good condition.

Leaks through walls on the north side of the Superintendent's residence have developed during recent storms to a degree that will necessitate a careful inspection and such repairs as may prove to be necessary for its preservation.

Very respectfully, **R. L. Phythian,**
Commodore, U. S. N., Superintendent of Naval Observatory.

The Chief of the Bureau of Equipment,
Navy Department, Washington D. C.

Estimates of appropriations required for the service of the fiscal year ending June 30, 1899, by the Bureau of Equipment, Navy Department.

SALARIES.

One chief clerk (appropriated, Rev. Stat., p. 70, sec. 416; act Feb. 19, 1897, pamphlet edition, legislative, executive and judicial bill, p. 31)	$1,800
One clerk of class 3 (same act)	1,600
One clerk of class 2 (same act)	1,400
One clerk of class 1 (same act)	1,200
One copyist (same act)	900
One assistant messenger (same act)	720
One laborer (same act)	660
Total amount to be appropriated under each head of appropriation	8,280
Amount appropriated for the current fiscal year, ending June 30, 1898	8,280

Estimates of appropriations required for the service of the fiscal year ending June 30, 1899, by the Bureau of Equipment, Navy Department.

Detailed objects of expenditure, and explanations.	Estimated amount which will be required for each detailed object of expenditure.	Total amount to be appropriated under each head of appropriation.	Amount appropriated for the current fiscal year ending June 30, 1898.
EQUIPMENT OF VESSELS.			
For purchase of coal for steamers' and ships' use, including expenses of transportation, storage, and handling the same; hemp, wire, iron, and other materials for the manufacture of cordage, anchors, cables, galleys, and chains; canvas for the manufacture of sails, awnings, hammocks, and other work; water for steaming purposes; stationery for commanding and navigating officers of ships, equipment officers on shore and afloat, and for the use of courts martial on board ship, and for the purchase of all other articles of equipment at home and abroad, and for the payment of labor in equipping vessels, and manufacture of equipment articles in the several navy-yards; foreign and local pilotage and towage of ships of war; services and materials in repairing, correcting, adjusting, and testing compasses on shore and on board ship; nautical and astronomical instruments and repairs to same; libraries for ships of war; professional books and papers, and drawings and engravings for signal books; naval signals and apparatus, namely, signal lights, lanterns, rockets, running lights; compass fittings, including binnacles, tripods, and other appendages of ships' compasses; logs and other appliances for measuring the ship's way, and leads and other appliances for sounding; lanterns and lamps and their appendages for general use on board ship for illuminating purposes, and oil and candles used in connection therewith; bunting and other materials for making and repairing flags of all kinds; photographic instruments and materials; musical instruments and music; and installing and maintaining electric lights and interior signal communications on board vessels of war (appropriated Mar. 3, 1897, pamphlet edition, Digest, p. 14)		$1,483,653.40	$1,458,117.00

Estimates of appropriations required for the service of the fiscal year ending June 30, 1899, by the Bureau of Equipment, Navy Department—Continued.

Detailed objects of expenditure, and explanations.	Estimated amount which will be required for each detailed object of expenditure.	Total amount to be appropriated under each head of appropriation.	Amount appropriated for the current fiscal year ending June 30, 1898.
CONTINGENT BUREAU OF EQUIPMENT.			
For freight and transportation of equipment stores, packing boxes and materials, printing, advertising, telegraphing, books, and models; stationery for the Bureau; furniture for equipment officers in navy-yards; postage on letters sent abroad; ferriage, ice, lighterage of ashes, and emergencies arising under cognizance of the Bureau of Equipment unforeseen and impossible to classify (appropriated Mar. 3, 1897, pamphlet edition, Digest, p. 14)	....	$15,000.00	$15,000.00
CIVIL ESTABLISHMENT.			
Navy-yard, Portsmouth, N. H.:			
One clerk (appropriated Mar. 3, 1897, pamphlet edition, Digest, p. 14)	$1,000.00		
Navy-yard, Boston, Mass.:			
One superintendent of ropewalk (same act)	1,875.00		
One clerk (same act)	1,400.00		
One clerk (same act)	1,300.00		
One writer (same act)	950.00		
Navy-yard, New York:			
One clerk (same act)	1,400.00		
One clerk (same act)	1,200.00		
Navy-yard, League Island, Pa.:			
One clerk (same act)	1,200.00		
Navy-yard, Norfolk, Va.:			
Two clerks, at $1,200 each (same act)	2,400.00		
Navy-yard, Mare Island, Cal.:			
One clerk (same act)	1,200.00		
Navy-yard, Washington, D. C.:			
One clerk, who shall also perform the clerical duties for the board of labor employment at said navy-yard (same act)	1,600.00		
		15,525.00	15,525.00
SALARIES, NAVAL OBSERVATORY.			
One assistant astronomer (R. S., p. 27, sec. 167, act Aug. 5, 1882, vol. 22, p. 245, sec. 1; act Feb. 19, 1897, vol. 29, p. 565, sec. 1)	2,000.00		2,000.00
Two assistant astronomers, at $1,800 each (same act)	3,600.00		3,600.00
One clerk of class 4 (same act)	1,800.00		1,800.00
One clerk of class 1 (same act)	1,200.00		1,200.00
One instrument maker (same act)	1,500.00		1,500.00
One assistant instrument maker (submitted)	1,000.00		
NOTE.—The work on instruments is important and increasing. The present instrument maker, who is an invaluable man, is pressed with work and greatly in need of assistance. The new man should be a good skilled mechanic.			
One electrician (act Feb. 19, 1897, vol. 29, p. 565, sec. 1)	1,500.00		1,500.00
One photographer (same act)	1,200.00		1,200.00
Five computers, at $1,200 each (same act)	6,000.00		6,000.00
Two computers, one at $1,400, one at $1,600 (submitted)	3,000.00		
NOTE.—Two additional computers are asked for in order to bring up work of reduction of observations for publication. This work is behindhand. The annual volume has not been printed since 1895, on account of the lack of force. Salaries are fixed at $1,400 and $1,600, in order to promote competent assistants, and make these positions intermediate in grade between the assistant astronomers at $1,800 and computers at $1,200. This increase is directly in the line of scientific efficiency.			
One assistant librarian (same act)			
One foreman and captain of the watch (same act)			
One carpenter (same act)			
One engineer (same act)			
One skilled laborer (same act)			
Two firemen, at $720 each (same act)			
Six watchmen, at $720 each (same act)			
One elevator conductor (same act)			
Eleven laborers, at $660 each (same act)			

Estimates of appropriations required for the service of the fiscal year ending June 30, 1899, by the Bureau of Equipment, Navy Department—Continued.

Detailed objects of expenditure, and explanations.	Estimated amount which will be required for each detailed object of expenditure.	Total amount to be appropriated under each head of appropriation.	Amount appropriated for the current fiscal year ending June 30, 1898.
CONTINGENT AND MISCELLANEOUS EXPENSES, NAVAL OBSERVATORY.			
Miscellaneous computations (act Feb. 19, 1897, vol. 29, p. 565, sec. 1)	$1,200.00		$1,200.00
Professional and scientific books, periodicals, engravings, photographs, and fixtures for the library (same act)	1,000.00		1,000.00
Apparatus and instruments, and for repairs of the same (same act)	2,000.00		2,000.00
Repairs to buildings, fixtures, and fences; furniture, gas, chemicals, and stationery; freight (including transmission of public documents through the Smithsonian exchange), foreign postage and expressage; plants, fertilizers, and all contingent expenses (increase of $500 submitted) (same act). See note (a)	3,000.00		2,500.00
Fuel, oil, grease, tools, pipe, wire, and other materials needed for the maintenance and repair of boilers, engines, heating apparatus, electric lighting and power plant, and water-supply system; purchase and maintenance of teams; material for boxing nautical instruments for transportation; paints, telegraph and telephone service, and incidental labor (same act)	7,500.00	$14,700.00	7,500.00
			14,200.00
NOTE (a).—The amount asked for ($3,000) is $1,550 less than that appropriated for 1892. The amount appropriated for 1898 ($2,500) is not much more than is required for the above items other than repairs, leaving a very small amount available for current repairs, the want of which is leading to deterioration that, if further overlooked, will soon make extensive and costly repairs necessary. This necessity may be avoided by the judicious annual expenditure of the increase asked for.			
PUBLIC WORKS UNDER THE NAVY DEPARTMENT.			
NAVAL OBSERVATORY.			
Grounds and roads:			
Continuing grading, extending roads and paths, clearing and improving grounds, and building a conduit for underground service of wires, pipes, etc. (act Mar. 3, 1897, vol. 29, p. 656, sec. 1)	....	15,000.00	5,000.00
NOTE.—The appropriation for improvement of grounds for 1896–97 was $10,000, and it was never less than $10,000 for any previous year at the new site. For 1897–98 the estimate for the same amount was cut in half, leaving but $5,000. I ask to have the previous amount restored, and respectfully invite attention to the indorsement of my predecessor, dated October 28, 1896, which I reiterate. An additional $5,000 is submitted for building an underground conduit for pipes, etc. At present the arrangement of steam pipes, which was regarded as only temporary in the first place, is most wasteful of fuel. The long circuitous lead of heating pipes, and impossibility of return of condensed steam to boilers, involve an extravagant use of coal and deterioration of boilers through scale. A considerable saving may be predicted by the improvement proposed.			
New buildings:			
Erection of 2 houses for quarters, and for gas, steam, water, and electric-light connections and furniture for the same (submitted)	....	18,000.00	
NOTE.—No service requires such unremitting attention and constant presence at all hours as [illegible]onomy. It [illegible]d that [illegible] all the observe[illegible]ng on [illegible] of the [illegible] at [illegible], not on[illegible] wo or [illegible] much [illegible] as [illegible] work [illegible] be [illegible] be [illegible]			

Estimates of appropriations required for the service of the fiscal year ending June 30, 1899, by the Bureau of Equipment, Navy Department—Continued.

Detailed objects of expenditure, and explanations.	Estimated amount which will be required for each detailed object of expenditure.	Total amount to be appropriated under each head of appropriation.	Amount appropriated for the current fiscal year ending June 30, 1898.
PUBLIC WORKS UNDER THE NAVY DEPARTMENT—continued.			
NAVAL OBSERVATORY—continued.			
New buildings—Continued.			
Building a double floor (under the movable floor), 26-inch equatorial dome, double doors at entrance to basement, and alterations to machinery (submitted).	....	$1,200.00	
Total	....	34,200.00	$5,000.00
NOTE.—This is necessary to prevent the current of warm air rising from the basement around the movable floor, seriously interfering with the use of the instrument in cold weather. It is necessary to keep the basement warm to prevent freezing in hydraulic machinery. This is an evil of long standing, and the proposed remedy is the simplest and most economical.			
SALARIES, NAUTICAL ALMANAC OFFICE.			
Salaries of assistants in preparing for publication the American Ephemeris and Nautical Almanac, viz:			
Three assistants, at $1,600 (acts Aug. 5, 1882, vol. 22, p. 245, sec. 1; Feb. 19, 1897, p. 565, sec. 1)	$4,800.00		
Two assistants, at $1,400 (same acts)	2,800.00		
Three assistants, at $1,200 (same acts)	3,600.00		
Two assistants, at $1,000 (same acts)	2,000.00		
One copyist and typewriter, at $900 (same acts)	900.00		
One assistant messenger, at $720 (same acts)	720.00		
One laborer, at $660 (same acts)	660.00		
One messenger boy, at $420 (same acts)	420.00	15,900.00	15,900.00
PAY OF COMPUTERS ON PIECEWORK.			
Pay of computers on piecework in preparing for publication the American Ephemeris and Nautical Almanac, and in improving the tables of the planets, moon, and stars, and reducing astronomical observations	7,000.00	7,000.00	7,000.00
INCREASE OF THE NAVY, EQUIPMENT.			
Toward the completion of the equipment outfit of the new vessels heretofore authorized by Congress (appropriated Mar. 3, 1897; pamphlet edition, Digest, p. 8)	175,000.00		
For the installation of electric plants on gunboats Nos. 10, 11, 12, and 13 (submitted)	40,000.00	215,000.00	162,628.00

Schedule of bids for two brick dwellings at the Naval Observatory, opened July 23, 1896.

D. F. Mockabee	[1]$11,666.00
James O'Day	11,760.00
Halliday & Wilson	13,109.00
William H. C. Thompson	11,895.00
Charles R. Monroe	11,966.00
William F. Walling	12,974.00
Noble H. Thomas	11,700.00
Jos. S. Reynolds	11,996.00
Victor F. Montgomery	12,399.00
Connor & Colloty	12,475.00

---

[1] Accepted.

Schedule of bids for coal, provender, and ice at Naval Observatory, opened May 6, 1897.

Class No. 1, coal:		
John B. Daish		$2,904.00
Mayfield & Heiston		[1] 2,808.80
T. Edward Chapman		2,844.00
V. Baldwin Johnson		2,944.00
Class No. 2, provender:		
Danenhower & Co		460.25
John B. Daish		458.95
W. M. Galt & Co		444.40
John J. O'Day		[1] 433.70
Independent Ice Company	per hundred	[1] .38
The Hygienic Ice Company	do	.41

---

[1] Accepted.

Very respectfully,

F. E. CHADWICK,
Chief of Bureau.

The SECRETARY OF THE NAVY.

REPORT

OF

THE CHIEF OF THE BUREAU OF NAVIGATION.

NAVY DEPARTMENT, BUREAU OF NAVIGATION,
Washington, D. C., October 1, 1897.

SIR: I have the honor to submit herewith a report (marked A) of the movements and duties of the ships of the Navy during the past year, a copy (marked B) of the report of the Superintendent of the Naval Academy, a copy (marked C) of the report of the Commandant of the Training Station, and a copy (marked D) of the report of the Hydrographer to the Bureau of Navigation.

Estimates for the support of the Bureau, the Naval Academy, the Training Station, the Naval War College and Torpedo School, and the Hydrographic Office, are also submitted (marked E).

During the year the *Monongahela*, *Puritan*, *Texas*, *Wilmington*, *Vesuvius*, *Oregon*, *Petrel*, *Standish*, *Iowa*, *Concord*, *Porter*, *Ericsson*, *Cushing*, and *Brooklyn* have been commissioned for service. The *Newark*, *Katahdin*, *Yantic*, *Monongahela*, and *Cushing* have been placed out of commission. On June 30 the *Columbia* was placed in reserve, and the *Minneapolis* ordered to be put in reserve.

During the fiscal year ending June 30, 1897, 28,789 men and 3,595 apprentices were applicants for enlistment. Of this number 23,164 men and 2,683 apprentices were rejected for physical disability or other causes. The disqualifications of 159 men and 5 apprentices were waived, and 278 men and 260 apprentices failed to enlist. Total number enlisted in the general service, 4,544 men and 701 apprentices. Of this number 1,388 men enlisted under continuous service certificates.

The number of men in the general service June 30, 1897, was 8,685 men and 1,642 apprentices; total, 10,327. Of this number 3,144 are serving under continuous-service certificates. Three men, enlisted for three years, are serving in the Naval Militia, but not counted in quota. The number of men in special service, 1,018, including Fish Commission and Coast Survey, make a grand total of 11,345. In addition to this number, 31 men are serving in the Navy Militia under special-service enlistments.

There have been discharged during the year from the general service, 2,273 men and 322 apprentices, and 940 men from the special service, making a total of 3,212 men and 322 apprentices discharged as follows: Two thousand five hundred and ninety men and 199 apprentices by expiration of service; 151 men and 21 apprentices for disability; 141 men, services no longer required; 45 men, own request; 19 men and 1 apprentice, request of commanding officer; 114 men and 33 apprentices for bad conduct; 1 man and 1 apprentice, illegal enlistment; 19 men and 15 apprentices, inaptitude; 69 men and 23 apprentices, undesirable; 57 men and 27 apprentices, by purchase; 6 men and 2 apprentices who were in the hospital for the insane were dropped on account of the expiration of their terms of service.

One thousand one hundred and fifteen men and 208 apprentices deserted from the general service and 34 from the special service, making a total of 1,149 men and 208 apprentices.

Forty men and 7 apprentices died in the general service and 7 men in the special service, making a total of 47 men and 7 apprentices.

Over 30 per cent of the men enlisted for the general service during the year entered under continuous service, as against about 20 per cent in the year ending June 30, 1896, and over 35 per cent of the whole number of men in the general service on June 30, 1897, were serving under continuous service, as against 30 per cent on June 30, 1896.

Over 44 per cent of the desertions occurred on the North Atlantic Station.

Of the number of men in the general service 2,845 are petty officers; of this number over 48 per cent are native born and 83 per cent are citizens of the United States.

Of the 5,840 in the general service holding other ratings 58 per cent are native born and 70 per cent are citizens.

Of the number of men in the special service 351 are petty officers; of this number over 86 per cent are native born and over 91 per cent are citizens of the United States.

Of the 667 men in special service under other ratings over 48 per cent are native born and over 68 per cent are citizens.

Of the whole number of men in the service over 54 per cent are native born and 74 per cent are citizens, as against about 52 per cent and 72 per cent, respectively, on June 30, 1896; over 12 per cent of the remainder have declared their intentions.

Of the 1,643 apprentices in the service over 86 per cent are native born.

Under sections 4756 and 4757 of the Revised Statutes 96 pensions have been allowed and 19 disallowed. Twenty-three pensions were pending July 1, 1896, and 16 pensions were pending July 1, 1897.

Owing to the great rush of gold seekers and speculators to northern Alaska along the Yukon River, and the extraordinary number of desperate characters that will be found there in the spring, I deem it most important that the Government should have in that Territory a naval force sufficient to command a proper observance of the law and preserve the peace.

As all communication in the Alaska gold country is by water the natural and most effective method of accomplishing the desired end would seem to be by the establishing of small posts and the patrolling of the river by a stern-wheel boat of very light draft, manned by naval officers and men and marines. The estimated cost of a suitable vessel is $30,000.

By reason of the severity of the climate and the exposure to which the officers and men will be subjected a special equipment will be necessary. The estimated cost of all equipment, including that necessary for the establishment of three small posts, is $30,000.

The plan of the expedition, showing all the details, is set forth in a statement of Lieut. George M. Stoney, U. S. N., hereto appended, marked F.

It is earnestly recommended that Congress appropriate and make immediately available the amount stated, $60,000, for the purpose named.

The *Amphitrite* having been set apart as a training ship for gun captains orders having been issued transferring about 55 men to her to constitute the class under instruction, and a provisional course of training having been drawn up the school may be said to be established, but it will be about six months before any trained gun captains will be available for general service.

Attention is invited to important recommendations in the report of the Superintendent of the Naval Academy. Following the plan of recommending only those changes which are actually necessary for the requirements of the service and for the proper development of the personnel, I urge that legislation be enacted to grant permits to candidates for admission to the Naval Academy a year in advance; that candidates be permitted to appear only at the May examination, and that the cadets be finally graduated and given a commission, if qualified, at the end of the four-year course. The recommendation to do away with the two years at sea before commissioning has been made repeatedly by the Superintendent of the Naval Academy, and it is a change which all unite in advocating. It would seem that Congress can hardly fail to make such a change if the recommendation is urged, inasmuch as it will meet with no opposition from any source within the Navy, at least.

The increasing exactions of the naval service, together with the requirements of the Coast Survey, the Fish Commission, and the Light-House Board, make an increase in the number of commissioned officers of the line imperative. It is generally admitted that our battleships should have their complement of line officers increased by about one-half, and, at present, there is no source from which to draw this increase. Officers have been taken from the smaller vessels and from shore stations until further expansion of the Navy can only be met by legislative enactment providing for an increased number of line officers. It is recommended that Congress be requested to authorize an increase in the number of lieutenants on the active list from 250 to 350, an increase in the number of lieutenants (junior grade) from 75 to 125, and an increase in the number of captains from 45 to 60, and to authorize the President to make a sufficient number of appointments to the Naval Academy, "at large," to provide for and maintain this increase, having due regard to the increase that could be provided for by giving cadets commissions at the end of the four-year course at the Naval Academy, instead of after six years, as now.

The requirements of the service are such that Congress should be requested to authorize an additional enlistment of 1,500 men and 500 apprentices.

The above recommendations, in regard to personnel, are made in order to meet absolute necessities of the service. Without this increase no further expansion of the Navy is possible, and even now it has become necessary to take valuable ships out of service in order that new vessels may be commissioned. The approaching completion of five large battle ships, to say nothing of smaller vessels, makes the necessity for this increase present. The additional officers can not be obtained at once, but authority should be given to increase their numbers and begin their training now. The recent success of the Bureau in enlisting men away from the seaboard is an assurance that the additional men allowed could be enlisted without delay, and with advantage to the service, in the central, southern, and western parts of the country.

The increase in numbers has been put at figures which represent necessities, believing that Congress can be convinced that these figures do represent necessities, and not mere symbols used to obtain something less.

A. S. CROWNINSHIELD,
Chief of Bureau.

The SECRETARY.

A.

VESSELS SERVING ON STATIONS AND DUTIES PERFORMED BY EACH.

NORTH ATLANTIC STATION.

Commander in Chief: Rear-Admiral F. M. Bunce until May 1, 1897, and Rear-Admiral Montgomery Sicard since that date.
Ships: *New York* (flagship), *Massachusetts*, *Puritan*, *Indiana*, *Texas*, *Maine*, *Terror*, *Marblehead*, *Montgomery*, *Wilmington*, *Fern*, and *Vesuvius*.

PACIFIC STATION.

Commander in Chief: Rear-Admiral Lester A. Beardslee.
Ships: *Philadelphia* (flagship), *Oregon*, *Monterey*, *Monadnock*, *Bennington*, *Marion*, and *Alert*.

SOUTH ATLANTIC STATION.

Commander in Chief: Captain Yates Sterling.
Ships: *Lancaster* (flagship) and *Castine*.

EUROPEAN STATION.

Commander in Chief: Rear-Admiral Thomas O. Selfridge.
Ships: *San Francisco* (flagship), *Raleigh*, and *Bancroft*.

ASIATIC STATION.

Commander in Chief: Rear-Admiral F. V. McNair.
Ships: *Olympia* (flagship), *Boston*, *Monocacy*, *Yorktown*, *Machias*, *Petrel*, *Detroit*.

SHIPS ON SPECIAL SERVICE.

Brooklyn, *Essex*, *Adams*, *Alliance*, *Amphitrite*, *Monongahela*, *Dolphin*, *Thetis*, *Pinta*, *Michigan*, *Porter*, *Ericsson*, and *Cushing*.

SHIPS UNASSIGNED TO STATIONS.

Iowa, *Cincinnati*, and *Detroit*.

Vessels serving on stations and duties performed by each.

FIRST RATE.

Name of vessel and port visited.	Date of arrival.	Date of departure.	Distance sailed. *Knots.*	Remarks.
Indiana, Capt. H. C. TAYLOR, commanding.				
Tompkinsville, Staten Island....	Sept. 19, 1896	Oct. 1, 1896	496	Commissioned Nov. 20, 1895.
Newport News, Va	Oct. 5, 1896	Oct. 9, 1896	8	
Hampton Roads, Virginia........	Oct. 9, 1896	Oct. 12, 1896	320	Assigned to North Atlantic Station Feb. 27, 1896.
Tompkinsville, Staten Island....	Oct. 14, 1896	Oct. 19, 1896	6	
Navy-yard, New York...........	Oct. 19, 1896	Nov. 29, 1896	6	
Tompkinsville, Staten Island....	Nov. 29, 1896	Dec. 9, 1896	298	
Hampton Roads, Virginia........	Dec. 10, 1896	Jan. 26, 1897	320	
Newport News, Va..............	Jan. 26, 1897	Jan. 29, 1897	8	
Hampton Roads, Virginia	Jan. 29, 1897	Feb. 4, 1897	8	Coal.
At sea	Feb. 4, 1897	Feb. 5, 1897	150	
Hampton Roads, Virginia........	Feb. 5, 1897	Feb. 9, 1897	474	
Charleston, S. C..................	Feb. 11, 1897	Feb. 21, 1897	408	
Newport News, Va	Feb. 23, 1897	Feb. 25, 1897	8	
Hampton Roads, Virginia	Feb. 25, 1897	Mar. 6, 1897	8	
Tompkinsville, Staten Island....	Mar. 8, 1897	Apr. 25, 1897	282	Get under way with flagship.
Hudson River, Grant's tomb	Apr. 25, 1897	Apr. 28, 1897	12	
Tompkinsville, Staten Island....	Apr. 28, 1897	May 18, 1897	34	
Off Sandy Hook, New Jersey....	May 18, 1897	May 20, 1897	34	Target practice.
Tompkinsville, Staten Island....	May 20, 1897	May 30, 1897	12	
Hudson River, Grant's tomb	May 30, 1897	June 1, 1897	12	
Tompkinsville, Staten Island....	June 1, 1897	June 4, 1897	6	
Navy-yard, New York...........	June 4, 1897	....	....	
Total distance sailed.......	....	....	2,910	
Oregon, Capt. H. L. HOWISON, commanding. Relieved by Capt. A. S. BARKER, Mar. 20, 1897.				
San Francisco, Cal...............	July 15, 1896	Oct. 15, 1896	....	Commissioned July 15, 1896.
Monterey, Cal....................	Oct. 29, 1896	Oct. 29, 1896	308	Pacific Station.
Sausalito, Cal....................	Oct. 30, 1896	Nov. 31, 1896	141	Inspected Nov. 9, 1896.
Monterey, Cal	Nov. 23, 1896	Nov. 24, 1896	183	
Santa Cruz, Cal..................	Nov. 24, 1896	Nov. 25, 1896	26	
San Francisco, Cal...............	Nov. 26, 1896	Jan. 13, 1897	81	Speed trials and target practice.
Sausalito, Cal....................	Jan. 13, 1897	Jan. 16, 1897	6	
Acapulco, Mexico.................	Jan. 24, 1897	Jan. 31, 1897	1,864	
Magdalena Bay....................	Feb. 4, 1897	Feb. 11, 1897	896	
Sausalito, Cal....................	Feb. 16, 1897	Feb. 19, 1897	1,118	
San Francisco, Cal	Feb. 19, 1897	Mar. 27, 1897	5	
Sausalito, Cal....................	Mar. 27, 1897	Mar. 30, 1897	5	
Port Townsend, Wash...........	Apr. 3, 1897	Apr. 3, 1897	626	
Puget Sound Naval Station......	.....do	May 20, 1897	52	
Seattle, Wash....................	May 20, 1897	May 25, 1897	14	
Port Angeles, Wash	May 25, 1897	May 28, 1897	60	Drills and exercises.
Port Townsend, Wash...........	May 28, 1897	May 31, 1897	30	
Port Angeles, Wash............	May 31, 1897	June 15, 1897	30	
Port Townsend, Wash	June 15, 1897	June 18, 1897	30	
Esquimalt, British Columbia	June 18, 1897	June 26, 1897	38	Participate in jubilee ceremonies at Victoria.
Tacoma, Wash....................	June 26, 1897	....	113	
Total distance sailed	....	....	5,637	
New York, Capt. W. S. SCHLEY, commanding. Relieved by Capt. SILAS CASEY, Mar. 14, 1897.				
Fort Monroe, Va..................	Oct. 5, 1896	Oct. 12, 1896	....	Commissioned Aug. 1, 1893.
Tompkinsville, Staten Island....	Oct. 14, 1896	Nov. 5, 1896	....	North Atlantic Station.
Navy-yard, New York	Nov. 5, 1896	Dec. 19, 1896	....	Fleet maneuvering.
Tompkinsville, Staten Island....	Dec. 19, 1896	Dec. 21, 1896	....	
Newport News, Va................	Dec. 22, 1896	Dec. 27, 1896	287	
Fort Monroe, Va..................	Dec. 24, 1896	Jan. 25, 1897	7	Coal ship.
Newport News, Va................	Jan. 25, 1897	Jan. 28, 1897	7	
Fort Monroe, Va..................	Jan. 26, 1897	Feb. 4, 1897	428	Maneuvering.
Charleston, S. C..................	Feb. 8, 1897	Feb. 21, 1897	428	
Newport News, Va................	Feb. 23, 1897	Feb. 25, 1897	7	Coal ship.
Fort Monroe, Va..................	Feb. 25, 1897	Mar. 6, 1897	280	
Tompkinsville, Staten Island....	Mar. 7, 1897	Mar. 9, 1897	6	
Navy-yard, New York	Mar. 9, 1897	Apr. 6, 1897	296	To navy-yard for repairs.
Fort Monroe, Va..................	Apr. 7, 1897	Apr. 19, 1897	280	
Tomkinsville, Staten Island	Apr. 20, 1897	Apr. 25, 1897	12	

Vessels serving on stations and duties performed by each—Continued.

FIRST RATE—Continued.

Name of vessel and port visited.	Date of arrival.	Date of departure.	Distance sailed.	Remarks.
New York, Capt. W. S. SCHLEY, commanding, etc.—Continued.			*Knots.*	
North River, New York	Apr. 25, 1897	Apr. 28, 1897	12	
Tompkinsville, Staten Island	Apr. 28, 1897	May 26, 1897	354	
Boston, Mass	May 28, 1897	June 10, 1897	550	
Hampton Roads, Virginia	June 12, 1897	June 13, 1897	9	
Newport News, Va	June 13, 1897	June 17, 1897	9	
Hampton Roads, Virginia	June 17, 1897			
Total distance sailed			2,962	
Massachusetts, Capt. FREDERICK RODGERS, commanding. Relieved by Capt. FRANCIS J. HIGGINSON, July 22, 1897.				
Tompkinsville, Staten Island	Sept. 18, 1896	Oct. 1, 1896	345	Commissioned June 10, 1896.
Fort Monroe, Va	Oct. 2, 1896	Oct. 22, 1896	228	North Atlantic Station.
Trial trip				
Fort Monroe, Va	Oct. 24, 1896	Oct. 27, 1896	298	
Tompkinsville, Staten Island	Oct. 28, 1896	Nov. 30, 1896	249	
Navy-yard, New York	Nov. 30, 1896	Feb. 7, 1897	8	
Tompkinsville, Staten Island	Feb. 7, 1897	Feb. 12, 1897	8	
Charleston, S. C	Feb. 13, 1897	Feb. 20, 1897	696	Join squadron off Charleston.
Tompkinsville, Staten Island	Feb. 23, 1897	May 26, 1897	696	
Boston, Mass	May 28, 1897	June 19, 1897	309	
St. Johns, Newfoundland	June 23, 1897	June 28, 1897	933	
Portland, Me	July 1, 1897		872	
Total distance sailed			4,642	
Columbia, Capt. J. H. SANDS, commanding.				
Brunswick, Ga	July 29, 1896	July 30, 1896	750	Commissioned Apr. 23, 1894.
Tompkinsville, Staten Island	Aug. 1, 1896	Aug. 8, 1896	300	North Atlantic Station.
Hampton Roads, Virginia	Aug. 9, 1896	Aug. 15, 1896	1,000	
Tompkinsville, Staten Island	Aug. 19, 1896	Sept. 1, 1896	380	
Fishers Island, N. Y	Sept. 4, 1896	Sept. 16, 1896	390	
Tompkinsville, Staten Island	Sept. 18, 1896	Oct. 1, 1896	470	Engaged in squadron evolutions.
Hampton Roads, Virginia	Oct. 5, 1896	Oct. 12, 1896	55	
Do	Oct. 12, 1896	Oct. 13, 1896	320	Do.
Tompkinsville, Staten Island	Oct. 15, 1896	Jan. 23, 1897	295	
Hampton Roads, Virginia	Jan. 24, 1897	Feb. 4, 1897	515	
Charleston, S. C	Feb. 7, 1897	Feb. 21, 1897	395	Participate in blockade at Charleston, S. C.
Hampton Roads, Virginia	Feb. 23, 1897	Mar. 8, 1897	10	Rejoin squadron.
Newport News, Va	Mar. 8, 1897	Mar. 10, 1897	475	Coal ship.
New York, N. Y	Mar. 15, 1897	Mar. 15, 1897	260	
Newport News, Va	Mar. 16, 1897	Mar. 22, 1897	10	
Hampton Roads, Virginia	Mar. 22, 1897			Placed in reserve at League Island, Pa., May 13, 1897.
Total distance sailed			5,625	
Minneapolis, Capt. G. H. WADLEIGH, commanding. Relieved by Capt. C. M. CHESTER, May 31, 1897. Relieved by Capt. J. H. SANDS, July 31, 1897.				
Stockholm, Sweden	June 30, 1896	July 8, 1896		Commissioned Dec. 13, 1894.
Copenhagen, Denmark	July 11, 1896	July 18, 1896	649	European Station.
Christiania, Norway	July 19, 1896	July 25, 1896	255	
Leith, Scotland	July 27, 1896	July 30, 1896	573	
Queensferry, Scotland	July 30, 1896	Aug. 6, 1896	10	
Gravesend, England	Aug. 8, 1896	Aug. 17, 1896	439	
Southampton, England	Aug. 18, 1896	Aug. 28, 1896	200	
Queenstown, Ireland	Aug. 29, 1896	Sept. 7, 1896	292	
Tangiers, Morocco	Sept. 11, 1896	Sept. 14, 1896	1,095	
Gibraltar, Spain	Sept. 14, 1896	do	33	
Genoa, Italy	Sept. 18, 1896	Oct. [illegible], 1896	881	
Smyrna, Turkey	Oct. 7, 1896	Nov. [illegible]	1,[illegible]	
Mersina, Syria	Nov. 26, 1896	[illegible]		
Jaffa, Syria	Dec. 5, 1896	[illegible]		
Smyrna, Turkey	Dec. 14, 1896	[illegible]		
Alexandretta, Syria	Dec. 25, 1896			

Vessels serving on stations and duties performed by each—Continued.

FIRST RATE—Continued.

Name of vessel and port visited.	Date of arrival.	Date of departure.	Distance sailed.	Remarks.
Minneapolis, Capt. G. H. WADLEIGH, commanding, etc.—Con.				
			Knots.	
Beirut, Syria	Jan. 1, 1897	Jan. 8, 1897	185	
Tripoli, Tripoli	Jan. 8, 1897	Jan. 10, 1897	42	
Latakiah, Syria	Jan. 11, 1897	Jan. 13, 1897	62	
Alexandretta, Syria	Jan. 13, 1897	Jan. 21, 1897	84	
Mersina, Syria	Jan. 21, 1897	Apr. 16, 1897	79	
Syra, Greece	Apr. 19, 1897	Apr. 21, 1897	525	
Venice, Italy	Apr. 25, 1897	May 18, 1897	854	Coal.
Piraeus, Greece	May 23, 1897	June 10, 1897	862	To go into dock.
Algiers, Morocco	June 14, 1897	June 14, 1897	1,088	
Gibraltar, Spain	June 16, 1897	June 21, 1897	422	Coal.
Lat. 35° 20′ N., long. 50° 00′ W	June 30, 1897	June 30, 1897	2,209	Placed in reserve at League Island, Pa., July 7, 1897.
Total distance sailed			13,229	
Maine, Capt. A. S. CROWNINSHIELD, commanding. Relieved by Capt. C. D. SIGSBEE, Apr. 10, 1897.				
Tompkinsville, Staten Island	Sept. 19, 1896	Oct. 1, 1896	372	Commissioned Sept. 17, 1895.
Fort Monroe, Va	Oct. 5, 1896	Oct. 12, 1896	275	North Atlantic Station.
Tompkinsville, Staten Island	Oct. 14, 1896	Oct. 23, 1896	275	Squadron drill.
New York, N. Y	Oct. 23, 1896	Nov. 27, 1896	6	
Tompkinsville, Staten Island	Nov. 29, 1896	Dec. 21, 1896	6	
Newport News, Va	Dec. 22, 1896	Dec. 24, 1896	286	
Fort Monroe, Va	Dec. 24, 1896	Jan. 21, 1897	9	
Lamberts Point, Virginia	Jan. 21, 1897	Jan. 22, 1897	7	Coal.
Fort Monroe, Va	Jan. 22, 1887	Feb. 4, 1897	7	
Charleston, S. C	Feb. 8, 1897	Feb. 18, 1897	425	Prepare to steam in squadron.
Port Royal, S. C	Feb. 19, 1897	Feb. 21, 1897	50	Coal.
New Orleans, La	Feb. 25, 1897	Mar. 11, 1897	1,140	
Port Royal, S. C	Mar. 16, 1897	Apr. 3, 1897	1.170	Steam with Texas.
Newport News, Va	Apr. 5, 1897	Apr. 6, 1897	437	Search for wreck.
Navy-yard, Norfolk, Va	Apr. 6, 1897	Apr. 17, 1897	15	
Hampton Roads, Virginia	Apr. 17, 1897	Apr. 19, 1897	11	With squadron, New York.
Tompkinsville, Staten Island	Apr. 20, 1897	Apr. 25, 1897	279	
North River, New York	Apr. 25, 1897	Apr. 29, 1897	11	
Navy-yard, New York	Apr. 29, 1897	June 22, 1897	9	For repairs.
North River, New York	June 22, 1897	June 23, 1897	6	
Hampton Roads, Virginia	June 25, 1897			
Total distance sailed			4,796	
Puritan, Capt. JOHN S. BARTLETT, commanding.				
Charleston, S. C	Feb. 19, 1897	Mar. 3, 1887	663	Commissioned Dec., 1896.
Navy-yard, New York	Mar. 15, 1897		650	Under repairs at navy-yard, New York.
Total distance sailed			1,313	
Texas, Capt. HENRY GLASS, commanding. Relieved by Capt. W. C. WISE, Mar 31, 1897.				
Tompkinsville, Staten Island	Oct. 14, 1896	Oct. 23, 1896	356	Commissioned July 20, 1896, North Atlantic Station.
Navy-yard, New York	Oct. 23, 1896	Feb. 9, 1897	6	
Galveston, Tex	Feb. 16, 1897	Feb. 24, 1897	2,012	
New Orleans, La	Feb. 26, 1897	Mar. 11, 1897	420	
Port Royal, S. C	Mar. 16, 1897	Apr. 3, 1897	988	
Newport News, Va	Apr. 5, 1897	Apr. 9, 1897	484	
Fort Monroe, Va	Apr. 9, 1897	Apr. 19, 1897	11	
Tompkinsville, Staten Island	Apr. 20, 1897	Apr. 25, 1897	261	
Grant's tomb, New York	Apr. 25, 1897	Apr. 28, 1897	12	
Tompkinsville, Staten Island	Apr. 28, 1897	May 10, 1897	12	
Philadelphia, Pa	May 13, 1897	May 18, 1897	232	Assist at unveiling of Washington Monument.
Boston, Mass	May 23, 1897	June 4, 1897	519	Assist at Shaw Monument ceremonies.
Newport News, Va	June 7, 1897	June 10, 1897	549	Coal ship.
Fort Monroe, Va	June 10, 1897		11	
Total distance sailed			5,873	

Vessels serving on stations and duties performed by each—Continued.

FIRST RATE—Continued.

Name of vessel and port visited.	Date of arrival.	Date of departure.	Distance sailed.	Remarks.
Olympia, Capt. J. J. READ, commanding. Relieved by Capt. G. V. GRIDLEY, July 28, 1897.				
			Knots.	
Yokohama, Japan	June 8, 1896	Sept. 17, 1896	....	Commissioned Feb. 5, 1895.
Yokosuka, Japan	Sept. 17, 1896	Sept. 30, 1896	11	Asiatic Station.
Yokohama, Japan	Sept. 30, 1896	Oct. 12, 1896	23	Swinging ship for deviation of compass.
Kobe, Japan	Oct. 13, 1896	Oct. 15, 1896	265	
Chefoo, China	Oct. 18, 1896	Nov. 9, 1896	805	
Nagasaki, Japan	Nov. 11, 1896	Jan. 23, 1897	580	
Hongkong, China	Jan. 26, 1897	Apr. 3, 1897	1,171	Target practice, torpedo exercise, etc.
Yokohama, Japan	Apr. 8, 1897	May 23, 1897	1,480	
Oquiohama, Japan	May 24, 1897	June 12, 1897	263	
Yokohama, Japan	June 13, 1897	....	263	
Total distance sailed	....	....	4,861	

SECOND RATE.

Boston, Capt. FRANK WILDES, commanding.				
			Knots.	
Shanghai, China	June 16, 1896	Sept. 11, 1896	....	Commissioned Nov. 15, 1895.
Woosung, China	Sept. 11, 1896	Sept. 14, 1896	12	Asiatic Station.
Chefoo, China	Sept. 16, 1896	Oct. 2, 1896	514	Target practice; general court-martial.
Do	Oct. 2, 1896	Oct. 9, 1896	15	
Do	Oct. 9, 1896	Nov. 4, 1896	20	
Chemulpo, Corea	Nov. 6, 1896	Jan. 16, 1897	278	Relieve Machias.
Nagasaki, Japan	Jan. 18, 1897	Jan. 25, 1897	520	
Chemulpo, Corea	Jan. 27, 1897	Mar 9, 1897	520	
Chefoo, China	Mar. 10, 1897	Mar. 13, 1897	275	
Amoy, China	Mar. 17, 1897	Mar. 24, 1897	1,125	
Off Amoy, China	Mar. 24, 1897	.....do......	10	
Amoy, China	.....do......	Mar. 30, 1897	10	
Off Wag Lan light-house	Mar. 31, 1897	Apr. 1, 1897	280	
Hongkong, China	Apr. 1, 1897	Apr. 26, 1897	12	
Mirs Bay	Apr. 26, 1897	Apr. 30, 1897	25	
Nagasaki, Japan	May 4, 1897	....	1,080	
Total distance sailed	....	....	4,696	
Raleigh, Capt. MERRILL MILLER, commanding. Relieved by Capt. J. C. BARCLAY, Jan. 6, 1897. Relieved by Capt. J. B. COGHLAN, Mar. 28, 1897.				
Tompkinsville, Staten Island	Sept. 18, 1896	Oct. 1, 1896	....	Commissioned Apr. 17, 1894.
Off Cape Henry, Virginia	Oct. 3, 1896	Oct. 4, 1896	355	North Atlantic Station.
Lamberts Point, Virginia	Oct. 5, 1896	Oct. 7, 1896	226	
Hampton Roads, Virginia	Oct. 7, 1896	Oct. 12, 1896	6	
Southport, N. C	Oct. 13, 1896	Oct. 17, 1896	313	
Off Cape Lookout, North Carolina	Oct. 17, 1896	.....do......	128	Destroy wreck off Cape Lookout, etc.
Port Royal, S. C	Oct. 18, 1896	Oct. 20, 1896	278	
Off St. Augustine, Fla	Oct. 20, 1896	.....do......	155	For prevention of violation of neutrality laws.
Off Jacksonville, Fla	Oct. 21, 1896	Oct. 21, 1896	171	
Key West, Fla	Oct. 24, 1896	Nov. 4, 1896	487	
Palm Beach, Fla	Nov. 5, 1896	Nov. 5 1896	290	
Key West, Fla	Nov. 6, 1896	Dec. 14, 1896	246	
Do	Dec. 16, 1896	Jan. 17, 1897	342	
Tampa, Fla	Jan. 18, 1897	Jan. 25, 1897	280	Relieved by Montgomery.
Key West, Fla	Jan. 28, 1897	Feb. 4, 1897	297	
Norfolk, Va	Feb. 9, 1897	Apr. 10, 1897	1,031	
Hampton Roads	Apr. 10, 1897	Apr. 19, 1897	12	
Tompkinsville, Staten Island	Apr. 20, 1897	Apr. 25, 1897	317	
North River	Apr. 25, 1897	Apr. 28, 1897	11	
Tompkinsville, Staten Island	Apr. 28, 1897	May 6, 1897	11	
Punta Delgada, Azores	May 17, 1897	May 22, 1897	2,358	Detached from North Atlantic Station and assigned to European Station.
Gibraltar, Spain	May 26, 1897	June 2, 1897	1,053	

Vessels serving on stations and duties performed by each—Continued.

SECOND RATE—Continued.

Name of vessel and port visited.	Date of arrival.	Date of departure.	Distance sailed.	Remarks.
Raleigh, Capt. MERRILL MILLER, commanding, etc.—Continued.				
			Knots.	
Algiers, Algeria	June 4, 1897	June 5, 1897	432	
Smyrna, Turkey	June 11, 1897	June 16, 1897	1,302	
Piræus, Greece	June 17, 1897	June 24, 1897	200	
Smyrna, Turkey	June 25, 1897		200	
Total distance sailed			10,501	
Cincinnati, Capt. M. L. JOHNSON, commanding. Relieved by Capt. E. M. SHEPARD, May 1, 1897.				
Lat. 37° 10′ N., long. 17° W	Sept. 30, 1896	Oct. 1, 1896	410	Commissioned June 16, 1894.
Gibraltar, Spain	Oct. 3, 1896	Oct. 6, 1896	554	European Station.
Smyrna, Turkey	Oct. 14, 1896	Nov. 23, 1896	1,677	
Mitylene, Turkey	Nov. 23, 1896	Nov. 25, 1896	58	
Smyrna, Turkey	Nov. 25, 1896	Dec. 7, 1896	58	
Cape Aspro	Dec. 7, 1896	Dec. 10, 1896	28	
Smyrna, Turkey	Dec. 10, 1896	Jan. 7, 1897	28	Subcaliber practice.
Vourlah Roads	Jan. 7, 1897	Jan. 8, 1897	17	
Smyrna, Turkey	Jan. 8, 1897	Feb. 2, 1897	17	
Vourlah Roads	Feb. 2, 1897	Feb. 3, 1897	17	
Smyrna, Turkey	Feb. 3, 1897	Feb. 25, 1897	17	Do.
Genoa, Italy	Mar. 2, 1897	Mar. 11, 1897	1,164	Dock.
Naples, Italy	Mar. 12, 1897	Apr. 11, 1897	345	Join flagship.
Mersina, Asia Minor	Apr. 16, 1897	Apr. 16, 1897	1,229	
Smyrna, Turkey	Apr. 19, 1897	May 5, 1897	609	Target practice.
Vourlah Roads	May 5, 1897	May 6, 1897	68	
Smyrna, Turkey	May 6, 1897	May 24, 1897	68	
Piræus, Greece	May 25, 1897	May 27, 1897	205	
Salonica, Turkey	May 28, 1897	May 31, 1897	260	
Piræus, Greece	June 1, 1897	June 10, 1897	257	
Smyrna, Turkey	June 11, 1897	June 12, 1897	197	
Gibraltar, Spain	June 19, 1897	June 21, 1897	1,688	
Horta, Fayal	June 26, 1897	June 29, 1897	1,138	
Hampton Roads, Virginia			879	
Total distance sailed			10,388	
Lancaster, Capt. YATES STIRLING, commanding.				
Montevideo, Uruguay	June 2, 1896	Aug. 3, 1896		Commissioned Sept. 12, 1895.
Ensenada, Argentina	Aug. 6, 1896	Aug. 29, 1896	97	South Atlantic Station.
Montevideo, Uruguay	Aug. 30, 1896	Nov. 23, 1896	81	
Chico Bank, River Plata	Nov. 23, 1896	Nov. 24, 1896	17	
Puerto La Plata, Argentina	Nov. 24, 1896	Dec. 1, 1896	88	
Montevideo, Uruguay	Dec. 2, 1896	May 21, 1897		At anchorage during quarter.
Buenos Aires Roads	May 28, 1897	June 2, 1897	129	
Chico Bank	June 2, 1897	June 3, 1897	28	
Montevideo, Uruguay	June 4, 1897		78	
Total distance sailed			518	
Monadnock, Capt. G. W. SUMNER, commanding. Relieved by Commander W. H. WHITING, June 22, 1897.				
San Francisco, Cal	Oct. 8, 1896	Oct. 12, 1896	27	Commissioned Feb. 20, 1896.
Navy-yard, Mare Island	Oct. 12, 1896	Dec. 5, 1896	27	Pacific Station.
San Francisco, Cal	Dec. 5, 1896	Dec. 31, 1896	15	
Sausalito, Cal	Dec. 31, 1896	Jan. 1, 1897		
San Diego, Cal	Jan. 24, 1897	Apr. 17, 1897	84	
San Pedro, Cal	Apr. 17, 1897	Apr. 24, 1897	88	To San Francisco with Monterey.
Santa Barbara, Cal	Apr. 24, 1897	Apr. 26, 1897	204	
Santa Cruz, Cal	Apr. 27, 1897	Apr. 29, 1897	80	
Sausalito, Cal	Apr. 30, 1897	May 12, 1897		
San Francisco, Cal	May 12, 1897	June 24, 1897	565	
Astoria, Oreg	June 27, 1897	June 28, 1897		
St. Helena, Oreg	June 28, 1897	June 29, 1897	105	
Portland, Oreg	June 29, 1897			
Total distance sailed			1,196	

Vessels serving on stations and duties performed by each—Continued.

SECOND RATE—Continued.

Name of vessel and port visited.	Date of arrival.	Date of departure.	Distance sailed.	Remarks.
Amphitrite, Capt. W. C. Wise, commanding. Relieved by Capt. C. J. Barclay, Mar. 30, 1897.			*Knots.*	
Navy-yard, Brooklyn	Sept. 8, 1896	Nov. 10, 1896	....	Commissioned Apr. 23,
Tompkinsville, Staten Island	Nov. 10, 1896	Nov. 16, 1896	8	North Atlantic Station
Lynn Haven Bay, Virginia	Nov. 17, 1896	Nov. 18, 1896	250	
Navy-yard, Norfolk, Va	Nov. 18, 1896	Dec. 10, 1896	20	
Hampton Roads, Virginia	Dec. 10, 1896	Jan. 27, 1897	10	
Lamberts Point, Virginia	Jan. 27, 1897	Jan. 29, 1897	8	To sea with squadron.
Hampton Roads, Virginia	Jan. 29, 1897	Feb. 4, 1897	8	
Off Charleston light-ship	Feb. 7, 1897	Feb. 11, 1897	466	
Charleston Harbor	Feb. 11, 1897	Feb. 13, 1897	11	
Off Charleston light-ship	Feb. 13, 1897	Feb. 18, 1897	11	
Charleston Harbor	Feb. 18, 1897	Mar. 9, 1897	11	To have 3 days' evol each month.
Evolutions at sea	Mar. 9, 1897	Mar. 12, 1897	273	
Charleston Harbor	Mar. 12, 1897	Apr. 1, 1897	11	
Lamberts Point, Virginia	Apr. 5, 1897	Apr. 8, 1897	485	
Hampton Roads, Virginia	Apr. 8, 1897	Apr. 19, 1897	8	
Tompkinsville, Staten Island	Apr. 20, 1897	Apr. 25, 1897	265	
North River, New York	Apr. 25, 1897	Apr. 28, 1897	11	
Tompkinsville, Staten Island	Apr. 28, 1897	May 5, 1897	11	
Hampton Roads, Virginia	May 6, 1897	May 7, 1897	244	
Navy-yard, Norfolk, Va	May 7, 1897	....	12	Detached from squ vessel to be used for ing gun captains.
Total distance sailed	....	....	2,123	
San Francisco, Capt. E. M. Shepard, commanding. Relieved by Capt. M. L. Johnson May 1, 1897.				
Mersyn, Asia Minor	June 26, 1896	July 31, 1896	....	Commissioned Nov. 15,
Smyrna, Turkey	Aug. 3, 1896	Aug. 10, 1896	636	European Station.
Mersyn, Asia Minor	Aug. 13, 1896	Aug. 23, 1896	636	
Alexandretta, Syria	Aug. 24, 1896	Sept. 4, 1896	80	Report state of affai Alexandretta.
Mersyn, Asia Minor	Sept. 4, 1896	Sept. 12, 1896	80	
Alexandretta, Syria	Sept. 13, 1896	Sept. 22, 1896	80	
Genoa, Italy	Sept. 30, 1896	Oct. 8, 1896	1,570	
Smyrna, Turkey	Oct. 14, 1896	Dec. 28, 1896	1,165	
Villefranche, France	Jan. 2, 1897	Jan. 15, 1897	343	
Genoa, Italy	Jan. 16, 1897	Jan. 26, 1897	98	Dock ship.
Villefranche, France	Jan. 27, 1897	Mar. 8, 1897	81	
Naples, Italy	Mar. 10, 1897	Mar. 23, 1897	453	
Mersyn, Asia Minor	Mar. 28, 1897	Mar. 28, 1897	1,170	
Alexandretta, Syria	Mar. 29, 1897	Mar. 30, 1897	83	Subcaliber practice.
Mersyn, Asia Minor	Mar. 31, 1897	Apr. 3, 1897	83	Target practice.
Rhodes	Apr. 5, 1897	Apr. 5, 1897	11	
Smyrna, Asia Minor	Apr. 6, 1897	May 4, 1897	625	
Piræus, Greece	May 5, 1897	May 14, 1897	207	
Nauplia, Greece	May 17, 1897	May 21, 1897	92	Subcaliber practice.
Piræus, Greece	May 21, 1897	May 28, 1897	92	
Smyrna, Turkey	May 29, 1897	June 15, 1897	207	
Mytilene, Turkey	June 15, 1897	June 18, 1897	60	Great-gun and subc practice.
Smyrna, Turkey	June 18, 1897	June 26, 1897	60	
Piræus, Greece	June 27, 1897	June 30, 1897	207	
Total distance sailed	....	....	8,119	
Newark, Capt. N. H. Farquhar, commanding. Relieved by Capt. C. M. Chester Dec. 1, 1896.				
Key West, Fla	Sept. 6, 1896	Oct. 1, 1896	1,204	Commissioned Feb.,
St. Johns River	Oct. 5, 1896	Oct. 8, 1896	400	North Atlantic Stati
At sea	Oct. 8, 1896	Oct. 11, 1896	....	
Port Royal, S. C	Oct. 13, 1896	Oct. 17, 1896	105	
St. Augustine, Fla	Oct. 19, 1896	Oct. 19, 1896	151	
At sea	....do	Oct. 20, 1896	....	
St. Augustine, Fla	Oct. 20, 1896	....do	....	
Hampton Roads, Virginia	Oct. 23, 1896	Oct. 29, 1896	552	
Norfolk Navy-Yard	Oct. 27, 1896	Dec. 4, 1896	....	

Vessels serving on stations and duties performed by each—Continued.

SECOND RATE—Continued.

Name of vessel and port visited.	Date of arrival.	Date of departure.	Distance sailed.	Remarks.
Newark, Capt. N. H. FARQUHAR, commanding, etc.—Continued.			*Knots.*	
St. Johns River	Dec. 6, 1896	Dec. 9, 1896	459	Prevent illegal expeditions.
Key West, Fla	Dec. 11, 1896	Dec. 14, 1896	469	
Do	Dec. 16, 1896	Dec. 31, 1896	415	
St. Johns River bar	Jan. 2, 1897	Jan. 2, 1897	526	Patrolling Florida coast for Commodore's wreck.
St. Johns River	Jan. 4, 1897	Jan. 6, 1897	225	
Port Royal, S. C	Jan. 10, 1897	Jan. 15, 1897	110	
St. Johns River bar	Jan. 16, 1897	Jan. 23, 1897	116	
Palm Beach, Fla	Feb. 6, 1897	Feb. 7, 1897	266	
Port Royal, S. C	Feb. 9, 1897	Mar. 21, 1897	330	
Norfolk, Va	Mar. 4, 1897			Placed out of commission Mar. 6, 1897.
Total distance sailed			5, 328	
Monterey, Capt. T. F. KANE, commanding. Relieved by Capt. C. E. CLARK Oct. 1, 1896.				
Mare Island, Cal	Sept. 17, 1896	Dec. 5, 1896	28	Commissioned Feb. 13, 1893.
Sausalito, Cal	Dec. 5, 1896	Dec. 17, 1896	26	Pacific Station.
Santa Cruz, Cal	Dec. 17, 1896	Dec. 18, 1896	64	
Monterey, Cal	Dec. 18, 1896	Dec. 30, 1896	20	
Santa Barbara, Cal	Dec. 31, 1896	Jan. 15, 1897		
Santa Monica, Cal	Jan. 15, 1897	Jan. 19, 1897	65	
Redondo Beach, Cal	Jan. 19, 1897	do	13	
San Pedro, Cal	do	do	14	
San Diego, Cal	Jan. 23, 1897	Apr. 17, 1897	90	Target practice.
San Pedro, Cal	Apr. 17, 1897	Apr. 24, 1897	83	
Santa Barbara, Cal	Apr. 24, 1897	Apr. 26, 1897	85	
Santa Cruz, Cal	Apr. 27, 1897	Apr. 29, 1897	217	
Sausalito, Cal	Apr. 30, 1897	May 8, 1897	66	
San Francisco, Cal	May 8, 1897	June 24, 1897	4	
Portland, Oreg	June 29, 1897		652	
Total distance sailed			1, 427	
Philadelphia, Capt. S. S. COTTON, commanding.				
Santa Cruz, Cal	June 15, 1896	July 1, 1896		Commissioned July 26, 1890.
Monterey, Cal	July 1, 1896	July 8, 1896	22	Pacific Station.
San Francisco, Cal	July 8, 1896	July 14, 1896	90	Semicentennial celebration of American occupancy of California, July 7, 1896.
Astoria, Oreg	July 17, 1896	July 17, 1896	556	
Fishers Island, Cal	do	July 18, 1896	40	
Portland, Oreg	July 18, 1896	July 28, 1896	45	
Astoria, Oreg	July 28, 1896	July 29, 1896	86	
Port Angeles, Wash	July 30, 1896	Oct. 10, 1896	240	For docking.
Victoria, British Columbia	Oct. 10, 1896	Oct. 13, 1896	17	
San Francisco, Cal	Oct. 16, 1896	Nov. 6, 1896	772	
Mare Island, Cal	Nov. 6, 1896	Nov. 18, 1896	25	
San Francisco, Cal	Nov. 18, 1896	Nov. 28, 1896	25	
Callao, Peru	Dec. 13, 1896	Dec. 27, 1896	4, 271	
Valparaiso, Chile	Jan. 1, 1897	Jan. 10, 1897	151	
Callao, Peru	Jan. 14, 1897	Jan. 17, 1897	1, 305	
Acapulco, Mexico	Jan. 24, 1897	Jan. 27, 1897	2, 198	
San Diego, Cal	Feb. 1, 1897	Mar. 4, 1897	1, 427	
Acapulco, Mexico	Mar. 9, 1897	Mar. 9, 1897	1, 417	
San José de Guatemala, Mexico	Mar. 11, 1897	Mar. 21, 1897	581	
Acapulco, Mexico	Mar. 24, 1897	Mar. 25, 1897	635	
San Diego, Cal	Mar. 31, 1897	Mar. 31, 1897	1, 415	
Honolulu, Hawaiian Islands	Apr. 1, 1897	Apr. 30, 1897		
Total distance sailed			15, 318	
Terror, Capt. P. F. HARRINGTON, commanding.				
Navy-yard, New York	Sept. 4, 1896	Nov. 12, 1896		Commissioned Apr. 15, 1896.
Sandy Hook, New Jersey	Nov. 12, 1896	Nov. 20, 1896	25	North Atlantic Station.
Tompkinsville, Staten Island	Nov. 21, 1896	Nov. 22, 1896	15	Test pneumatic system.
Navy-yard, New York	Nov. 22, 1896	Feb. 13, 1897	10	
Charleston, S. C	Feb. 18, 1897	Apr. 1, 1897	595	
Norfolk, Va	Apr. 6, 1897	Apr. 7, 1897	10	

Vessels serving on stations and duties performed by each—Continued.

SECOND RATE—Continued.

Name of vessel and port visited.	Date of arrival.	Date of departure.	Distance sailed.	Remarks.
Terror, Capt. P. F. HARRINGTON, commanding—Continued.				
			Knots.	
Fortress Monroe, Va.	Apr. 7, 1897	Apr. 19, 1897	288	
Tompkinsville, Staten Island	Apr. 21, 1897	Apr. 25, 1897	13	
Hudson River	Apr. 25, 1897	Apr. 28, 1897	13	
Tompkinsville, Staten Island	Apr. 28, 1897	May 28, 1897	233	
Philadelphia, Pa.	May 13, 1897	May 20, 1897	240	Attend dedication of W ington Monument.
Navy-yard, New York	May 22, 1897			For repairs.
Total distance sailed			1,442	

THIRD RATE.

Detroit, Commander G. C. REITER, commanding.				
Yokohama, Japan	May 25, 1896	July 10, 1896		Commissioned July 20,
Nagasaki, Japan	July 13, 1896	July 16, 1896	507	Asiatic Station.
Chemulpo, Korea	July 19, 1896	Sept. 5, 1896	275	Relieved by Machias.
Chefoo, China	Sept. 6, 1896	Oct. 1, 1896	520	Target practice; gen court-martial.
Shanghai, China	Oct. 3, 1896	Jan. 16, 1897	490	
Nagasaki, Japan	Jan. 18, 1897	Feb. 9, 1897	1,065	
Hongkong, China	Feb. 12, 1897	Feb. 20, 1897	1,588	
Kohse Chang, Siam	Feb. 25, 1897	Feb. 27, 1897	792	Make transfers with chias.
Singapore, Malay Peninsula	Mar. 2, 1897	Mar. 6, 1897	1,576	
Colombo, Ceylon	Mar. 11, 1897	Mar. 13, 1897	2,099	
Aden, Arabia	Mar. 21, 1897	Mar. 23, 1897	1,310	Make transfers with M apolis.
Suez, Egypt	Mar. 29, 1897	Mar. 29, 1897	45	
Ismalia, Egypt	do	Mar. 30, 1897	46	
Port Said, Egypt	Mar. 30, 1897	Apr. 3, 1897	360	
Mersina, Asia Minor	Apr. 5, 1897	Apr. 5, 1897	1,259	
Naples, Italy	Apr. 11, 1897	Apr. 21, 1897	999	
Gibraltar, Spain	Apr. 26, 1897	Apr. 27, 1897	618	
Funchal, Madeira	Apr. 30, 1897	May 3, 1897	2,445	
Murray Anchorage, Bermuda	May 13, 1897	May 14, 1897	720	
Tompkinsville, Staten Island	May 17, 1897	May 18, 1897	690	Prepare for inspection.
Foot East Twenty-sixth street	May 18, 1897	May 21, 1897	8	
Total distance sailed			18,412	
Machias, Commander E. S. HOUSTON, commanding. Relieved by Commander M. R. S. MACKENZIE Oct. 7, 1896. Detached Mar. 23, 1897. Command taken by Lieut. D. H. MAHAN until arrival of Commander J. F. MERRY, April 30, 1897.				
Yokohama, Japan	June 18, 1896	Aug. 1, 1896		Commissioned Sept. 18,
Kobe, Japan	Aug. 3, 1896	Aug. 3, 1896	373	Asiatic Station.
Chemulpo, Korea	Aug. 6, 1896	Aug. 7, 1896	815	
Chefoo, China	Aug. 8, 1896	Sept. 3, 1896	278	Look after American ests.
Chemulpo, Korea	Sept. 4, 1896	Nov. 7, 1896	276	Steaming around target
Chefoo, China	Nov. 9, 1896	Nov. 19, 1896	294	Relieve U. S. S. Detro Chemulpo.
Tripoint Island	Nov. 21, 1896	Nov. 22, 1896	515	
Ningpo, China	Nov. 22, 1896	Nov. 29, 1896	73	
Taichow, China	Nov. 29, 1896	Nov. 30, 1896	130	
Wenchow, China	Nov. 30, 1896	Dec. 3, 1896	78	
Pagoda Anchorage	Dec. 4, 1896	Dec. 8, 1896	190	
Amoy, China	Dec. 9, 1896	Dec. 16, 1896	206	
Swatow, China	Dec. 17, 1896	Dec. 21, 1896	142	
Hongkong, China	Dec. 22, 1896	Jan. 6, 1897	177	
Canton, China	Jan. 7, 1897	Jan. 16, 1897	86	
Hongkong, China	Jan. 16, 1897	Jan. 17, 1897	86	
Bangkok (off bar)	Jan. 22, 1897	Jan. 23, 1897	1,515	
Bangkok (off city)	Jan. 23, 1897	Mar. 6, 1897	34	
Saigon, China	Mar. 10, 1897	Mar. 13, 1897	628	
Hongkong, China	Mar. 17, 1897	Mar. 25, 1897	980	
Mirs Bay	Mar. 25, 1897	Mar. 27, 1897	30	Target practice.

Vessels serving on stations and duties performed by each—Continued.

THIRD RATE—Continued.

Name of vessel and port visited.	Date of arrival.	Date of departure.	Distance sailed.	Remarks.
Machias, Commander E. S. HOUSTON, commanding, etc.—Cont'd.				
			Knots.	
Lat. 36° 10′ N., long. 122° 57′ W	Mar. 31, 1897	Mar. 31, 1897	111	
Chefoo, China	Apr. 1, 1897	Apr. 17, 1897	138	
Chemulpo, Korea	Apr. 18, 1897	June 16, 1897	278	
Shanghai, China	June 18, 1897		534	To be relieved by Petrel.
Total distance sailed			7, 967	
Castine, Commander T. PERRY, commanding. Relieved by Commander R. M. BERRY, Dec. 8, 1896.				
Colonia, Uruguay	June 24, 1896	July 9, 1896		Commissioned Oct. 22, 1894.
Dos Hermanos, Argentina	July 12, 1896	July 18, 1896	195	South Atlantic Station.
Rosario, Argentina	July 20, 1896	Aug. 4, 1896	43	Cruise up Panama River.
Dos Hermanos, Argentina	Aug. 4, 1896	Aug. 7, 1896	43	
Montevideo, Uruguay	Aug. 9, 1896	Aug. 15, 1896	273	
Maldonado, Uruguay	Aug. 15, 1896	Aug. 17, 1896	64	
Rio de Janeiro, Brazil	Aug. 22, 1896	Sept. 15, 1896	982	Assist commission of American manufacturers.
Maldonado, Uruguay	Sept. 20, 1896	Sept. 21, 1896	1, 005	Target practice.
Montevideo, Uruguay	Sept. 21, 1896	Oct. 10, 1896	59	
Bahia, Brazil	Oct. 18, 1896	Oct. 19, 1896	1, 709	
Port Castries, St. Lucia	Oct. 30, 1896	Oct. 31, 1896	2, 504	
Norfolk, Va	Nov. 7, 1896	Mar. 3, 1897	1, 647	
Newport News, Va	Mar. 3, 1897	Mar. 17, 1897	14	
Port Castries, St. Lucia	Mar. 25, 1897	Mar. 27, 1897	1, 690	Receive men from Lancaster and Yantic for transfer to flagship of South Atlantic Station.
Lat. 6° 5′ N., long. 48° 45′ W	Mar. 31, 1897	Mar. 31, 1897	910	
Bahia, Brazil	Apr. 9, 1897	Apr. 12, 1897	1, 751	
Montevideo, Uruguay	Apr. 21, 1897	June 13, 1897	1, 702	
Chico Bank	June 14, 1897	June 19, 1897	90	Target practice.
Buenos Aires, Brazil	June 19, 1897		32	
Total distance sailed			14, 713	
Thetis, Lieut. Commander URIEL SEBREE, commanding.				
San Diego, Cal	Oct. 2, 1896	Oct. 19, 1896	210	Commissioned Jan., 1887.
Todos Santos, Lower California	Oct. 20, 1896	Oct. 26, 1896	723	Carry on survey of coast of Lower California.
Cape San Lucas	Oct. 26, 1896	Oct. 29, 1896	49	
San José del Cabo	Oct. 29, 1896	Oct. 31, 1896	18	
Cape San Lucas	Oct. 31, 1896	Nov. 8, 1896	14	
San José del Cabo	Nov. 8, 1896	Nov. 11, 1896	16	
Cape San Lucas	Nov. 11, 1896	Nov. 24, 1896	16	
Pinchilinque Harbor	Nov. 25, 1896	Nov. 29, 1896	144	
Cape San Lucas	Nov. 30, 1896	Nov. 30, 1896	136	
San José del Cabo	do	Dec. 1, 1896	16	
Cape San Lucas	Dec. 1, 1896	Dec. 9, 1896	16	
San José del Cabo	Dec. 9, 1896	Dec. 16, 1896	26	
Cape San Lucas	Dec. 16, 1896	Dec. 17, 1896	17	
San Diego, Cal	Dec. 21, 1896	Jan. 9, 1897	744	
Magdalena Bay, Mexico	Jan. 13, 1897	Jan. 13, 1897	595	
San José del Cabo	Jan. 14, 1897	Jan. 15, 1897	185	
Pinchilinque Bay	Jan. 19, 1897	Feb. 15, 1897	597	
Guaymas, Mexico	Feb. 17, 1897	Feb. 23, 1897	228	
Pinchilinque Bay	Feb. 25, 1897	Feb. 26, 1897	221	
Cape San Lucas	Feb. 26, 1897	Mar. 1, 1897	134	
San José del Cabo	Mar. 4, 1897	Mar. 28, 1897	1, 035	Cruising; engaged in sounding.
Pinchilinque Bay	Mar. 28, 1897	Apr. 2, 1897	47	
San Diego, Cal	Apr. 8, 1897	Apr. 20, 1897	933	
San Francisco, Cal	Apr. 24, 1897	Apr. 27, 1897	471	
Navy-yard, Mare Island, Cal	Apr. 27, 1897		26	
Total distance sailed			6, 617	
Monocacy, Commander W. W. REISINGER, commanding. Relieved by Lieut. H. WINSLOW, Sept. 5, 1896. Relieved by Commander O. W. FARENHOLT, Nov. 14, 1896.				
Tientsin, China	Nov. 9, 1895	Nov. 13, 1896	195	Commissioned Jan. 19, 1895.
Tongku, China	Nov. 13, 1896	Mar. 8, 1897	41	Asiatic Station.

Vessels serving on stations and duties performed by each—Continued.

THIRD RATE—Continued.

Name of vessel and port visited.	Date of arrival.	Date of departure.	Distance sailed.	Remarks.
Monocacy, Commander W. W. REISINGER, commanding, etc.—Continued.				
			Knots.	
Chefoo, China	Mar. 11, 1897	Mar. 13, 1897	207	
Shanghai, China	Mar. 16, 1897		529	Moored at Shanghai during second quarter.
Total distance sailed			972	
Essex, Commander E. T. STRONG, commanding.				
New York	Sept. 30, 1896	Jan. 10, 1897		Commissioned Jan. 31, 1894.
Newport, R. I	Jan. 11, 1897	Jan. 19, 1897	121	Apprentice training ship.
Barbados, West Indies	Feb. 12, 1897	Feb. 23, 1897	2,456	
St. Kitts	Feb. 26, 1897	Mar. 11, 1897	307	
St. Thomas	Mar. 13, 1897	Mar. 23, 1897	133	
La Guayra, Venezuela	Mar. 30, 1897	Apr. 7, 1897	636	
Kingston, Jamaica	Apr. 12, 1897	Apr. 21, 1897	881	
Key West, Fla	May 1, 1897	May 12, 1897	1,190	
Sag Harbor, N. Y	May 29, 1897	June 17, 1897	112	Target practice.
New York	June 18, 1897			
Total distance sailed			5,836	
Alliance, Commander H. N. MANNEY, commanding.				
Newport, R. I	July 1, 1896	July 9, 1896	42	Commissioned Jan. 19, 1895.
Southampton, England	Aug. 11, 1896	Aug. 26, 1896	3,462	North Atlantic Station.
Lisbon, Portugal	Sept. 14, 1896	Sept. 21, 1896	1,110	Five months' cruise with apprentices.
Funchal, Madeira	Sept. 26, 1896	Oct. 2, 1896	504	Moving target practice.
Frigate Bay, St. Kitts	Nov. 10, 1896	Jan. 6, 1897	3,040	
St. Thomas	Jan. 11, 1897	Jan. 31, 1897	120	
Newport News, Va	Jan. 31, 1897	Feb. 12, 1897	1,595	
New York, N. Y	Feb. 14, 1897	June 17, 1897	244	Moored to dock, navy-yard, New York.
Total distance sailed			10,117	
Adams, Commander E. W. WATSON, commanding. Relieved by Commander W. C. GIBSON, Jan. 7, 1897.				
Honolulu, Hawaiian Islands	June 12, 1896	Sept. 20, 1896		Commissioned Dec. 24, 1895.
Lahaina, Hawaiian Islands	Sept. 21, 1896	Sept. 25, 1896	81	Target practice.
Honolulu, Hawaiian Islands	Sept. 25 1896	Dec. 12, 1896	76	Pacific Station.
San Francisco, Cal	Dec. 28, 1896	Dec. 31, 1896	2,142	
Mare Island, Cal	Dec. 31, 1896	Feb. 5, 1897	25	Five months' cruise with apprentices.
Sausalito, Cal	Feb. 5, 1897	Feb. 11, 1897	25	
Mare Island, Cal	Feb. 11, 1897	Feb. 14, 1897	25	
Sausalito, Cal	Feb. 14, 1897	Feb. 15, 1897	25	
San Diego, Cal	Mar. 21, 1897	Apr. 2, 1897	3,318	
Magdalena Bay	Apr. 7, 1897	Apr. 19, 1897	588	
Hilo, Hawaiian Islands	May 10, 1897	May 17, 1897	2,475	
Honolulu, Hawaiian Islands	May 19, 1897	May 29, 1897	211	
Port Angeles, Wash	June 18, 1897		2,571	
Total distance sailed			11,562	
Dolphin, Commander RICHARDSON CLOVER, commanding. Relieved by Commander H. W. LYON, May 29, 1897.				
Newport, R. I	Sept. 24, 1896	Oct. 9, 1896		Commissioned Mar. 14, 1892.
New York, N. Y	Oct. 10, 1896	Oct. 30, 1896	165	
Washington, D. C	Nov. 1, 1896	Jan. 3, 1897	425	
St. Johns River bar, Florida	Jan. 6, 1897	Jan. 14, 1897	743	Cruising for supposed filibusters.
Off St. Johns River bar	Jan. 14, 1897	Jan. 16, 1897	18	
Fernandina, Fla	Jan. 16, 1897	Jan. 24, 1897	14	
Off St. Johns River bar	Jan. 24, 1897	Feb. 2, 1897	14	
Port Royal, S. C	Feb. 3, 1897	Feb. 7, 1897	114	
Off Charleston bar	Feb. 7, 1897	Feb. 8, 1897	43	
Off St. Johns River bar	Feb. 9, 1897	Feb. 11, 1897	168	Do.

Vessels serving on stations and duties performed by each—Continued

THIRD RATE—Continued.

Name of vessel and port visited.	Date of arrival.	Date of departure.	Distance sailed.	Remarks.
Dolphin, Commander RICHARDSON CLOVER, commanding, etc.—Continued.				
			Knots.	
Off St. Johns River bar	Feb. 11, 1897	Feb. 16, 1897	60	
Charleston, S. C	Feb. 17, 1897	Feb. 18, 1897	168	
Off Charleston bar	Feb. 18, 1897	do	11	
Charleston, S. C	do	Feb. 23, 1897	11	
Washington, D. C	Feb. 25, 1897	Apr. 7, 1897	580	
Annapolis, Md	Apr. 8, 1897	Apr. 10, 1897	169	
Washington, D. C	Apr. 12, 1897	Apr. 21, 1897	169	
North River, New York	Apr. 23, 1897	Apr. 27, 1897	409	
Do	Apr. 27, 1897	Apr. 29, 1897	4	
Navy-yard, New York	Apr. 29, 1897	May 12, 1897	3	
Washington, D. C	May 14, 1897	June 2, 1897	402	
Annapolis, Md	June 3, 1897	June 5, 1897	169	
Washington, D. C	June 6, 1897	June 13, 1897	169	
Tompkinsville, Staten Island	June 14, 1897	June 15, 1897	392	
Menemsha Bight	June 15, 1897	June 16, 1897	157	
Nantasket Roads	June 16, 1897	June 17, 1897	120	
Boston, Mass	June 17, 1897	June 24, 1897	10	
Portsmouth Roads, New Hampshire.	June 24, 1897	June 26, 1897	70	
Gloucester, Mass	June 26, 1897	do	43	
Marblehead, Mass	do	June 27, 1897	12	
Hull, Mass	June 27, 1897	do	14	
Boston, Mass	do		10	
Total distance sailed			4,856	
Yorktown, Commander C. H. STOCKTON, commanding.				
Chemulpo, Korea	May 11, 1896	July 20, 1896		Commissioned Apr. 23, 1889.
Nagasaki, Japan	July 22, 1896	July 31, 1896	521	Asiatic Station.
Obe Hato Ura, Japan	Aug. 1, 1896	Aug. 2, 1896	266	
Yokohama, Japan	Aug. 4, 1896	Aug. 25, 1896	471	
Nagasaki, Japan	Aug. 28, 1896	Oct. 15, 1896	731	
Chefoo, China	Oct. 17, 1896	Nov. 9, 1896	569	
Chinkiang, China	Nov. 12, 1896	Nov. 13, 1896	652	
Wuhu, China	Nov. 13, 1896	Nov. 17, 1896	97	
Nanking, China	Nov. 17, 1896	Nov. 20, 1896	55	
Chinkiang, China	Nov. 20, 1896	Nov. 26, 1896	45	
Shanghai, China	Nov. 27, 1896	Jan. 16, 1897	35	
Nagasaki, Japan	Jan. 18, 1897	Jan. 23, 1897	468	
Shanghai, China	Jan. 25, 1897	Mar. 18, 1897	470	Protect American interests.
Chinkiang, China	Mar. 21, 1897	Mar. 25, 1897	230	Target practice.
Wuhu, China	Mar. 25, 1897	Mar. 29, 1897	97	
Kioo Kiang, China	Mar. 30, 1897	Apr. 2, 1897	197	
Hankow, China	Apr. 2, 1897	Apr. 10, 1897	142	Do.
Chinkiang, China	Apr. 11, 1897	Apr. 16, 1897	436	Dock.
Shanghai, China	Apr. 16, 1897	Apr. 29, 1897	163	Target practice.
Saddle Islands	Apr. 30, 1897	May 3, 1897	79	
Yokohama, Japan	May 7, 1897	June 26, 1897	966	
Kobe, Japan	June 27, 1897		352	
Total distance sailed			7,042	
Bennington, Commander G. W. PIGMAN, commanding. Relieved by Commander H. E. NICHOLS, Jan. 19, 1897.				
Mare Island, Cal	Mar. 17, 1896	Aug. 8, 1896		Commissioned June 20, 1891.
San Francisco, Cal	Aug. 8, 1896	Aug. 28, 1896	28	Pacific Station.
Port Angeles, Wash	Aug. 31, 1896	Oct. 10, 1896	784	Squadron drill.
Victoria, British Columbia	Oct. 10, 1896	Oct. 13, 1896	16	
Port Angeles, Wash	Oct. 13, 1896	Oct. 17, 1896	16	
Port Townsend, Wash	Oct. 17, 1896	Oct. 18, 1896	34	
Everett, Wash	Oct. 18, 1896	Oct. 21, 1896	27	
Tacoma, Wash	Oct. 21, 1896	Oct. 29, 1896	43	
Port Angeles, Wash	Oct. 30, 1896	Oct. 31, 1896	191	
San Francisco, Cal	Nov. 4, 1896	Nov. 19, 1896	784	Dock ship at yard.
Mare Island, Cal	Nov. 19, 1896	Nov. 26, 1896	28	
San Francisco, Cal	Nov. 26, 1896	Dec. 5, 1896	28	
Acapulco, Mexico	Dec. 12, 1896	Dec. 17, 1896	1,879	
La Libertad, Salvador	Dec. 21, 1896	Dec. 25, 1896	670	
El Triunfo, Salvador	Dec. 25, 1896	Jan. 16, 1897	54	
La Libertad, Salvador	Jan. 17, 1897	Jan. 21, 1897	56	

Vessels serving on stations and duties performed by each—Continued.

THIRD RATE—Continued.

Name of vessel and port visited.	Date of arrival.	Date of departure.	Distance sailed.	Remarks.
Bennington, Commander G. W. PIGMAN, commanding, etc.—Continued.				
			Knots.	
Jiquilisco Bay	Jan. 21, 1897	Apr. 24, 1897	51	Make survey of bay.
La Libertad, Salvador	Apr. 24, 1897	Apr. 25, 1897	51	
Acapulco, Mexico	Apr. 29, 1897	May 2, 1897	670	
San Francisco, Cal	May 11, 1897	May 26, 1897	1,879	
Mare Island, Cal	May 26, 1897		28	
Total distance sailed			7,317	
Marblehead, Commander T. F. JEWELL, commanding. Relieved by Commander HORACE ELMER, Mar. 15, 1897.				
Venice, Italy	June 19, 1896	July 9, 1896		Commissioned Apr. 2, 1894
Trieste, Austria	July 4, 1896	July 18, 1896	55	European Station.
Messina, Sicily	July 21, 1896	July 28, 1896	690	Torpedo practice.
Catania, Sicily	July 28, 1896	Aug. 4, 1896	57	
Palermo, Sicily	Aug. 5, 1896	Aug. 14, 1896	166	
Genoa, Italy	Aug. 17, 1896	Sept. 1, 1896	419	
Mersina, Asia Minor	Sept. 7, 1896	Oct. 9, 1896	1,489	Protect American interest
Smyrna, Turkey	Oct. 12, 1896	Oct. 19, 1896	617	
Gibraltar, Spain	Oct. 27, 1896	Oct. 31, 1896	1,692	
Funchal, Madeira	Nov. 4, 1896	Nov. 6, 1896	618	
Murray Harbor, Bermuda	Nov. 17, 1896	Nov. 20, 1896	2,412	
Tompkinsville, Staten Island	Nov. 23, 1896	Feb. 1, 1897	708	Assigned to North Atlant Station.
Charleston, S. C	Feb. 8, 1897	Feb. 15, 1897	834	
St. Johns River	Feb. 16, 1897	Feb. 23, 1897	159	
Key West, Fla	Feb. 25, 1897	Mar. 4, 1897	496	
Apalachicola, West Pass	Mar. 6, 1897	Mar. 6, 1897	360	
Apalachicola, East Pass	do	do	35	
Apalachicola, West Pass	do	Mar. 7, 1897	37	
Pensacola, Fla	Mar. 8, 1897	Mar. 9, 1897	120	
Apalachicola	Mar. 10, 1897	Mar. 22, 1897	171	
Off St. Marks	Mar. 2, 1897	do	54	
Apalachicola	Mar. 22, 1897	Mar. 27, 1897	54	
Pensacola, Fla	Mar. 28, 1897	Apr. 1, 1897	180	
Key West, Fla	Apr. 1, 1897	Apr. 10, 1897	464	
Palm Beach, Fla	Apr. 11, 1897	Apr. 11, 1897	188	
New River Inlet	do	Apr. 12, 1897	55	
Key West, Fla	Apr. 14, 1897	May 9, 1897	219	
Puerto Cortez, Honduras	May 12, 1897	May 18, 1897	744	
Key West, Fla	May 22, 1897	May 30, 1897	629	
New River Inlet	May 31, 1897	May 31, 1897	169	
Key West, Fla	June 1, 1897	June 14, 1897	259	
Palm Beach, Fla	June 15, 1897	June 15, 1897	173	
Key West, Fla	June 16, 1897	June 19, 1897	237	
Marblehead, Mass	June 25, 1897	June 30, 1897	1,279	
Boston, Mass	June 30, 1897		18	
Total distance sailed			16,958	
Marion, Commander JAMES G. GREEN, commanding.				
Paita, Peru	Apr. 22, 1896	July 9, 1896		Commissioned Sept. 16, 189
Panama, United States of Colombia.	July 14, 1896	July 29, 1896	871	Pacific Station.
Callao, Peru	Aug. 7, 1896	Oct. 6, 1896	1,367	
Iquique, Chile	Oct. 10, 1896	Oct. 13, 1896	673	
Arica, Chile	Oct. 14, 1896	Oct. 18, 1896	110	
Callao, Peru	Oct. 21, 1896	Nov. 28, 1896	577	
Panama, Colombia	Dec. 5, 1896	Dec. 12, 1896	1,380	
La Libertad, Salvador	Dec. 16, 1896	Dec. 26, 1896	793	
Jiquilisco Bay	Dec. 26, 1896	Jan. 1, 1897	55	
La Libertad, Salvador	Jan. 1, 1896	Jan. 6, 1896	55	
Jiquilisco Bay	Jan. 6, 1896	Jan. 16, 1896	55	
La Libertad, Salvador	Jan. 16, 1897	Jan. 18, 1897	55	
Acapulco, Mexico	Jan. 22, 1897	Jan. 28, 1897	671	
San Diego, Cal	Feb. 7, 1897	Feb. 27, 1897	1,487	
Honolulu, Hawaiian Islands	Mar. 18, 1897	June 30, 1897	2,560	At anchor in Honolulu Ha bor.
Total distance sailed			10,709	

Vessels serving on stations and duties performed by each—Continued.

THIRD RATE—Continued.

Name of vessel and port visited.	Date of arrival.	Date of departure.	Distance sailed.	Remarks.
Montgomery, Commander R. B. BRADFORD, commanding.				
			Knots.	
Tompkinsville, Staten Island	July 1, 1896	July 11, 1896	33	Commissioned June 21, 1894.
Gardiners Bay, New York	July 11, 1896	July 15, 1896	60	North Atlantic Station.
Hoboken, N. J	July 15, 1896	July 18, 1896	64	
Tompkinsville, Staten Island	July 18, 1896	July 25, 1896	194	
Key West, Fla	July 30, 1896	Sept. 8, 1896	1, 273	Relieve U. S. S. Maine.
Tompkinsville, Staten Island	Sept. 12, 1896	Oct. 1, 1896	1, 273	Turn over orders to U. S. S. Newark.
Hampton Roads, Virginia	Oct. 5, 1896	Oct. 12, 1896	464	
Tompkinsville, Staten Island	Oct. 14, 1896	Nov. 11, 1896	464	Join squadron.
Navy-yard, New York	Nov. 11, 1896	Jan. 12, 1897	6	
Tompkinsville, Staten Island	Jan. 12, 1897	Jan. 13, 1897	6	
Navy-yard, New York	Jan. 13, 1897	Jan. 21, 1897	6	
Tompkinsville, Staten Island	Jan. 21, 1897	Jan. 22, 1897	6	
Hampton Roads, Virginia	Jan. 24, 1897	Jan. 28, 1897	302	
St. Johns River, Florida	Jan. 30, 1897	Feb. 1, 1897	502	
Key West, Fla	Feb. 3, 1897	Feb. 25, 1897	644	Relieve Marblehead.
Mobile, Ala	Feb. 28, 1897	Mar. 4, 1897	537	Guard coast of Florida.
Pensacola, Fla	Mar. 6, 1897	Mar. 28, 1897	75	
Charlotte Harbor, Florida	Mar. 30, 1897	Apr. 2, 1897	356	
Port Tampa, Fla	Apr. 2, 1897	May 3, 1897	84	
Entrance Pensacola Bay	May 4, 1897	May 5, 1897	330	
Pensacola, Fla	May 5, 1897	May 14, 1897	11	
Navy-yard, Pensacola	May 14, 1897	do	4	
Entrance Tampa Bay	May 16, 1897	May 19, 1897	303	
Port Tampa, Fla	May 19, 1897	May 31, 1897	20	Participate in Jubilee celebration, May 20.
Entrance Tampa Bay	May 31, 1897	June 1, 1897	20	
Off Life-Saving Station, Pensacola.	June 2, 1897	June 6, 1897	288	
Pensacola, Fla	June 6, 1897	June 15, 1897	4	
Navy-yard, Pensacola	June 15, 1897		4	
Total distance sailed			7, 333	
Katahdin, Commander R. P. LEARY, commanding.				
New York				Commissioned Feb. 20, 1896.
Tompkinsville, Staten Island	Mar. 4, 1897	Mar. 6, 1897		
Fort Monroe, Va	Mar. 24, 1897	Mar. 24, 1897		
Hampton Roads, Virginia	do	do		
Norfolk, Va	do	Mar. 31, 1897		
League Island, Pa	Apr. 2, 1897			Placed out of commission Apr. 17, 1897.
Alert, Commander F. HANFORD, commanding. Relieved by Commander BENJ. S. RICHARDS Aug. 20, 1896.				
Port Angeles, Wash	Sept. 15, 1896	Oct. 6, 1896		Commissioned Apr. 2, 1894.
San Francisco, Cal	Oct. 10, 1896	Oct. 12, 1896	792	Pacific Station.
Mare Island, Cal	Oct. 12, 1896	Nov. 2, 1896	25	Target practice Sept. 14, 1896.
San Francisco, Cal	Nov. 2, 1896	Nov. 18, 1896	26	
Honolulu, Hawaiian Islands	Dec. 9, 1896	Mar. 5, 1897	2, 180	Drills and target practice.
Lahaina, Hawaiian Islands	Mar. 5, 1897	Mar. 8, 1897	73	
Honolulu, Hawaiian Islands	Mar. 8, 1897	Mar. 22, 1897	72	Relieved by Marion.
San Francisco, Cal	Apr. 4, 1897	Apr. 13, 1897	2, 114	
Navy-yard, Mare Island	Apr. 13, 1897	May 18, 1897	26	
San Francisco, Cal	May 18, 1897	May 25, 1897	26	
Drakes Bay	May 25, 1897	May 26, 1897	46	
Neah Bay, Wash	May 30, 1897	May 31, 1897	680	
Victoria, British Columbia	May 31, 1897	June 4, 1897	60	Target practice.
Port Angeles, Wash	June 4, 1897	June 17, 1897	20	
Esquimalt, British Columbia	June 17, 1897	June 18, 1897	19	
Union Wharf, British Columbia	June 18, 1897	June 20, 1897	131	
Safety Cove, Calvert Island	June 21, 1897	June 21, 1897	193	
Coghlan Anchorage, Promise Island.	do	June 22, 1897	154	
Port Chester, Alaska	June 22, 1897	June 23, 1897	165	
North entrance to Wrangell Strait.	June 23, 1897	June 24, 1897	130	
Sitka, Alaska	June 24, 1897	June 30, 1897	154	Convoy Pinta to Mare Island by inland passage to Puget Sound.
Total distance sailed			7, 085	

Vessels serving on stations and duties performed by each—Continued.

THIRD RATE—Continued.

Name of vessel and port visited.	Date of arrival.	Date of departure.	Distance sailed.	Remarks.
Monongahela, Commander EDWIN WHITE, commanding.			*Knots.*	
Annapolis, Md	Aug. 8, 1896	June 7, 1897	3, 929	Commissioned May 15, 1897
Funchal, Madeira	July 1, 1897	July 14, 1897		Cruising with cadets.
Annapolis, Md				

FOURTH RATE.

Petrel, Lieut. Commander E. P. WOOD, commanding.				
Mare Island, Cal		Jan. 21, 1897		Commissioned Dec. 16, 1896.
San Francisco Bay	Jan. 21, 1897	Jan. 22, 1897		Asiatic Station.
Sausalito, Cal	Jan. 22, 1897	Feb. 10, 1897		Swinging ship.
Monterey, Cal	Feb. 10, 1897	Feb. 17, 1897	100	
Santa Cruz, Cal	Feb. 17, 1897	Feb. 18, 1897	25	
Monterey, Cal	Feb. 18, 1897	Feb. 20, 1897	25	
Sausalito, Cal	Feb. 20, 1897	Feb. 28, 1897	100	
Mare Island, Cal	Feb. 28, 1897	Mar. 19, 1897	28	Being inspected.
Sausalito, Cal	Mar. 19, 1897	Mar. 31, 1897	28	
At sea	Mar. 31, 1897	do		
Hilo, Hawaiian Islands	Apr. 8, 1897	Apr. 12, 1897	1, 995	
Honolulu, Hawaiian Islands	Apr. 13, 1897	Apr. 24, 1897	180	
Yokohama, Japan	May 9, 1897	June 1, 1897	3, 533	
Nagasaki, Japan	June 5, 1897	June 10, 1897	695	Target practice.
Chemulpo, Korea	June 15, 1897		710	
Total distance sailed			7, 419	
Pinta, Lieut. Commander A. R. COUDEN, commanding. Relieved by Lieut. Commander F. M. SYMONDS, Oct. 9, 1896.				
Sitka, Alaska	June 22, 1896	July 17, 1896	167	
Brown Cove	July 18, 1896	July 18, 1896	45	
Fort Wrangell	do	July 22, 1896	85	
Wards Cove	July 22, 1896	July 26, 1896	6	
Kitchikan	July 26, 1896	July 28, 1896	16	
Port Chester	July 28, 1896	July 30, 1896	40	
Loring	July 30, 1896	Aug. 1, 1896	25	
Yes Bay	Aug. 1, 1896	Aug. 3, 1896	101	
Wrangell	Aug. 3, 1896	Aug. 6, 1896	75	
Cleveland Passage	Aug. 6, 1896	Aug. 7, 1896	83	
Killisnoo	Aug. 7, 1896	Aug. 8, 1896	25	
Saook Bay	Aug. 8, 1896	Aug. 9, 1896	30	
Fishbay	Aug. 9, 1896	do	28	
Sitka, Alaska	do	Jan. 29, 1897	113	Moored during quarter.
Point Retreat	Jan. 30, 1897	Jan. 30, 1897	6	
Lindenburg Harbor	do	do	113	
Broad Island, Peril Strait	Jan. 31, 1897	Jan. 31, 1897		
Sitka, Alaska	do	June 30, 1897	93	
Union Wharf, British Columbia	July 5, 1897	July 8, 1897	656	
Drakes Bay	July 1, 1897	July 13, 1897	851	
Sausalito, Cal	July 13, 1897	July 17, 1897	32	
Mare Island, Cal	July 17, 1897		24	
Total distance sailed			2, 614	
Michigan, Lieut. Commander E. H. C. LEUTZE, commanding. Relieved by Lieut. Commander R. RUSH, Apr. 5, 1897.				
Put in Bay, Ohio	Sept. 13, 1896	Oct. 7, 1896	48	Engaged in surveying.
Detroit, Mich	Oct. 7, 1896	Oct. 15, 1896	48	
Put in Bay, Ohio	Oct. 15, 1896	do	47	
Erie, Pa	Oct. 16, 1896	June 13, 1897	141	In winter quarters at Erie.
Detroit, Mich	June 14, 1897	June 15, 1897	181	
Duluth, Minn	June 18, 1897	June 20, 1897	720	
Bayfield, Wis	June 20, 1897	June 28, 1897	68	
Apostle Islands	June 28, 1897	do		
Washburn, Wis	do		9	
Total distance sailed			1, 262	

Vessels serving on stations and duties performed by each—Continued.

FOURTH RATE—Continued.

Name of vessel and port visited.	Date of arrival.	Date of departure.	Distance sailed.	Remarks.
Bancroft, Lieut. Commander CHARLES BELKNAP, commanding. Relieved by Lieut. Commander C. H. ARNOLD, Jan. 14, 1897.			*Knots.*	
Philadelphia, Pa	June 19, 1896	July 6, 1896	....	Commissioned Mar. 3, 1893.
Delaware Breakwater	July 6, 1896	July 7, 1896	85	Practice ship.
New Brighton, N. Y	July 7, 1896	July 13, 1896	140	Visit different shipyards for instruction of cadets.
Navy-yard, New York	July 13, 1896	July 28, 1896	6	
Bridgeport, Conn	July 28, 1896	July 30, 1896	48	
New London, Conn	July 30, 1896	Aug. 1, 1896	55	
Newport, R. I	Aug. 1, 1896	Aug. 7, 1896	52	
Boston, Mass	Aug. 8, 1896	Aug. 10, 1896	175	
Bath, Me	Aug. 10, 1896	Aug. 12, 1896	125	
Portsmouth, N. H	Aug. 12, 1896	Aug. 15, 1896	70	
Navy-yard, New York	Aug. 16, 1896	Aug. 17, 1896	315	
Lynn Haven Roads, Virginia	Aug. 18, 1896	Aug. 22, 1896	275	
Annapolis, Md	Aug. 23, 1896	Aug. 31, 1896	124	
Navy-yard, New York	Sept. 2, 1896	Sept. 12, 1896	402	Assigned to the European Station.
Tompkinsville, Staten Island	Sept. 12, 1896	Sept. 15, 1896	6	
Fayal, Azores	Sept. 25, 1896	Sept. 28, 1896	2, 133	
Gibraltar, Spain	Oct. 4, 1896	Oct. 6, 1896	1, 136	
Smyrna, Turkey	Oct. 15, 1896	Dec. 7, 1896	1, 631	General target practice.
Dikili, Turkey	Dec. 7, 1896	Dec. 11, 1896	58	
Smyrna, Turkey	Dec. 12, 1896	Jan. 18, 1897	58	
Vourlah Roads	Jan. 18, 1897	Jan. 19, 1897	18	
Smyrna, Turkey	Jan. 19, 1897	Feb. 9, 1897	18	
Vourlah Roads	Feb. 9, 1897	Feb. 10, 1897	18	
Smyrna, Turkey	Feb. 10, 1897	Apr. 13, 1897	18	
Alexandria, Egypt	Apr. 16, 1897	Apr. 26, 1897	560	
Yafa, Palestine	Apr. 28, 1897	May 1, 1897	375	
Sidan, Syria	May 2, 1897	May 3, 1897	108	
Beirut, Syria	May 3, 1897	May 8, 1897	25	
Tripoli, Tripoli	May 8, 1897	May 10, 1897	45	
Latakiya, Syria	May 10, 1897	May 12, 1897	65	
Snedia, Syria	May 12, 1897	May 14, 1897	40	
Alexandretta, Syria	May 14, 1897	May 17, 1897	51	
Karadash, Syria	May 17, 1897	May 19, 1897	34	
Mersina, Syria	May 19, 1897	June 10, 1897	44	
Sidan, Syria	June 11, 1897	June 14, 1897	261	
Beirut, Syria	June 14, 1897	June 20, 1897	27	
Mersina, Syria	June 21, 1897	....	178	
Total distance sailed	....	....	8, 679	
Petrel, Lieut. Commander W. H. EMORY, commanding. Relieved by Lieut. Commandar E. P. WOOD, Dec. 16, 1896.				
Mare Island, Cal	May 4, 1896	Jan. 21, 1897	....	Commissioned Dec. 16, 1896.
San Francisco Bay	Jan. 21, 1897	Jan. 22, 1897	23	Pacific Station.
Sausalito, Cal	Jan. 22, 1897	Feb. 10, 1897	28	Swinging ship.
Monterey, Cal	Feb. 10, 1897	Feb. 17, 1897	100	
Santa Cruz, Cal	Feb. 17, 1897	Feb. 18, 1897	25	
Monterey, Cal	Feb. 18, 1897	Feb. 20, 1897	25	
Sausalito, Cal	Feb. 20, 1897	Feb. 28, 1897	100	
Mare Island, Cal	Feb. 28, 1897	Mar. 19, 1897	28	
Sausalito, Cal	Mar. 19, 1897	Mar. 31, 1897	28	Being inspected.
At sea	Mar. 31, 1897	.....do	....	
Hilo, Hawaiian Islands	Apr. 8, 1897	Apr. 12, 1897	1, 995	
Honolulu, Hawaiian Islands	Apr. 13, 1897	Apr. 24, 1897	180	
Yokohama, Japan	May 9, 1897	June 1, 1897	3, 533	
Nagasaki, Japan	June 5, 1897	June 10, 1897	695	
Chemulpo, Korea	June 15, 1897	....	710	Target practice.
Total distance sailed	....	....	7, 470	
Yantic, Lieut. Commander E. P. GILMORE, commanding. Relieved by Lieut. Commander J. M. MILLER, Jan. 16, 1897.				
Nueva Palmira, Uruguay	June 27, 1896	July 2, 1896	....	
Fray Bentos, Uruguay	July 2, 1896	July 14, 1896	55	South Atlantic Station.
Paysando, Uruguay	July 14, 1896	July 25, 1896	48	

Vessels serving on stations and duties performed by each—Continued.

FOURTH RATE—Continued.

Name of vessel and port visited.	Date of arrival.	Date of departure.	Distance sailed.	Remarks.
Yantic, Lieut. Commander E. P. GILMORE, commanding, etc.—Continued.				
			Knots.	
Concepcion, Argentina	July 25, 1896	July 31, 1896	6	
Fray Bentos, Uruguay	July 31, 1896	Aug. 4, 1896	42	
Nueva Palmira, Uruguay	Aug. 4, 1896	Aug. 7, 1896	47	Small-arm target practice.
Do	Aug. 7, 1896	Aug. 10, 1896	8	
Chico Bank light-ship	Aug. 10, 1896	Aug. 11, 1896	75	Great-gun target practice.
Montevideo, Uruguay	Aug. 11, 1896	Aug. 26, 1896	74	
Puerto La Plata, Argentina	Aug. 26, 1896	Aug. 27, 1896	94	
Buenos Ayres, Argentina	Aug. 27, 1896	Sept. 24, 1896	15	
Montevideo, Uruguay	Sept. 25, 1996		107	
Chico Bank light-ship	Dec. 9, 1896	Dec. 14, 1896	77	Target practice.
Montevideo, Uruguay	Dec. 14, 1896	Mar. 4, 1897	77	
Chico Bank	Mar. 4, 1897	Mar. 8, 1897	82	
Montevideo, Uruguay	Mar. 8, 1897	Mar. 11, 1897	82	Protect American interests.
Colinia, Uruguay	Mar. 12, 1897	Mar. 21, 1897	110	
Buenos Aires Roads	Mar. 21, 1897	Mar. 22, 1897	22	
Colonia, Uruguay	Mar. 22, 1897	Mar. 23, 1897	24	
Fray Bentos, Uruguay	Mar. 24, 1897	Mar. 24, 1897	96	
Banco Grande	do	Mar. 26, 1897	42	
Fray Bentos, Uruguay	Mar. 26, 1897	Mar. 27, 1897	23	
Arenal Point	Mar. 27, 1897	Mar. 28, 1897	38	
Neuva Palmira, Uruguay	Mar. 28, 1897	Mar. 30, 1897	14	
Ensonada, Rio la Plata	Mar. 30, 1897	Apr. 2, 1897	61	
Montevideo, Uruguay	Apr. 2, 1897	Apr. 25, 1897		
Rio de Janeiro, Brazil	May 2, 1897	May 4, 1897		
Bahia, Brazil	May 8, 1897	May 12, 1897		
Castris, St. Lucia	May 29, 1897	June 2, 1897		
Hampton Roads, Virginia	June 11, 1897	June 11, 1897		
Navy-yard, Norfolk, Va	June 12, 1897	June 16, 1897		
Navy-yard, Boston	June 19, 1897			Placed out of commission.
Total distance sailed			1,319	
Fern, Lieut. Commander H. B. MANSFIELD, commanding. Relieved by Lieut. Commander W. S. COWLES, Apr. 5, 1897.				
Navy-yard, New York	Sept. 30, 1896	Oct. 4, 1896		Commisioned Apr. 22, 1890. North Atlantic Station.
Hampton Roads, Virginia	Oct. 5, 1896	Oct. 6, 1896	264	
Newport News, Virginia	Oct. 6, 1796	do	7	
Norfolk Yard	do	do	9	
Hampton Roads	do	Oct. 7, 1896	11	
Norfolk Yard	Oct. 7, 1896	do	11	
Newport News	do	do	9	
Hampton Roads	do	Oct. 8, 1896	7	
Norfolk Yard	Oct. 8, 1896	do	11	
Hampton Roads	do	Oct. 9, 1896	11	
Norfolk Yard	Oct. 9, 1896	do	11	
Hampton Roads	do	Oct. 10, 1896	11	
Norfolk Yard	Oct. 10, 1896	do	11	
Hampton Roads	do	Oct. 14, 1896	11	
Tompkinsville, Staten Island	Oct. 15, 1896	Oct. 16, 1896	257	
New York Yard	Oct. 16, 1896	Oct. 19, 1896	7	
Tompkinsville	Oct. 19, 1896	do	7	
New York Yard	do	Oct. 21, 1896	7	
Tompkinsville	Oct. 21, 1896	do	7	
New York Yard	do	do	7	
Tompkinsville	do	Oct. 22, 1896	7	
New York Yard	Oct. 22, 1896	Oct. 23, 1896	7	
Tompkinsville	Oct. 23, 1896	Oct. 26, 1896	7	
New York Yard	Oct. 26, 1896	do	7	
Tompkinsville	do	Oct. 27, 1896	7	
New York Yard	Oct. 27, 1896	do	7	
Tompkinsville	do	Oct. 29, 1896	7	
New York Yard	Oct. 29, 1896	do	7	
Tompkinsville	do	Oct. 30, 1896	7	
North River and Thirty-fourth street.	Oct. 30, 1896	do	8	
Tompkinsville	do	Oct. 31, 1896	8	
New York Yard	Oct. 31, 1896	do	7	
Tompkinsville	do	Nov. 2, 1896	7	
North River	Nov. 2, 1896	do	8	
Tompkinsville	do	Nov. 3, 1896	8	
New York Yard	Nov. 3, 1896	do	7	
Tompkinsville	do	Nov. 5, 1896	7	
New York Yard	Nov. 5, 1896	Nov. 14, 1896	7	

Vessels serving on stations and duties performed by each—Continued.

FOURTH RATE—Continued.

Name of vessel and port visited.	Date of arrival.	Date of departure.	Distance sailed.	Remarks.
Fern, Lieut. Commander H. B. MANSFIELD, commanding, etc.—Continued.				
			Knots.	
Tompkinsville	Nov. 14, 1896	Nov. 14, 1896	7	
New York Yard	do	Nov. 17, 1896	7	
Tompkinsville	Nov. 17, 1896	do	7	
New York Yard	do	Nov. 18, 1896	7	
Tompkinsville	Nov. 18, 1896	do	7	
New York Yard	do	Nov. 19, 1896	7	
Tompkinsville	Nov. 19, 1896	do	7	
New York Yard	do	Nov. 20, 1896	7	
Tompkinsville	Nov. 20, 1896	do	7	
New York Yard	do	Nov. 23, 1896	7	
Tompkinsville	Nov. 23, 1896	do	7	
New York Yard	do	Nov. 25, 1896	7	
Tompkinsville	Nov. 25, 1896	do	7	
New York Yard	do	Nov. 27, 1896	7	
Tompkinsville	Nov. 27, 1896	do	7	
New York Yard	do	Nov. 28, 1896	7	
Tompkinsville	Nov. 28, 1896	do	7	
New York Yard	do	Nov. 30, 1896	7	
Tompkinsville	Nov. 30, 1896	do	7	
New York Yard	do	Dec. 1, 1896	7	
Tompkinsville	Dec. 1, 1896	do	7	
New York Yard	do	Dec. 2, 1896	7	
Tompkinsville	Dec. 2, 1896	do	7	
New York Yard	do	Dec. 3, 1896	7	
Tompkinsville	Dec. 3, 1896	do	7	
New York Yard	do	Dec. 4, 1896	7	
Tompkinsville	Dec. 4. 1896	do	7	
New York Yard	do	Dec. 21, 1896	7	
Tompkinsville	Dec. 21, 1896	do	7	
Hampton Roads	Dec. 22, 1896	Dec. 23, 1896	257	
Newport News	Dec. 23, 1896	do	7	
Norfolk Yard	do	do	9	
Newport News	do	Dec. 24, 1896	9	
Hampton Roads	Dec. 24, 1896	Dec. 26, 1896	7	
Norfolk Yard	Dec. 26, 1896	do	11	
Hampton Roads	do	Jar. 1, 1897	11	
Norfolk Yard	Jan. 1, 1897	do	11	
Hampton Roads	do	Jan. 4, 1897	11	
Norfolk Yard	Jan. 4, 1897	do	11	
Hampton Roads	do	Jan. 7, 1897	11	
Norfolk Yard	Jan. 7, 1897	do	11	
Hampton Roads	do	Jan. 9, 1897	11	
Norfolk Yard	Jan. 9, 1897	do	11	
Hampton Roads	do	Jan. 13, 1897	11	
Norfolk Yard	Jan. 13, 1897	Jan. 19, 1897	11	
Hampton Roads	Jan. 19, 1897	Jan. 22, 1897	11	
Lamberts Point, Virginia	Jan. 22, 1897	do	7	
Hampton Roads	do	do	7	
Norfolk Yard	do	do	11	
Hampton Roads	do	Jan. 25, 1897	11	
Norfolk Yard	Jan. 25, 1897	do	11	
Hampton Roads	do	do	11	
Newport News	do	Jan. 26, 1897	7	
Hampton Roads	Jan. 26, 1897	Jan. 27, 1897	7	
Norfolk Yard	Jan. 27, 1897	do	11	
Hampton Roads	do	Jan. 28, 1897	11	
Norfolk Yard	Jan. 28, 1897	do	11	
Hampton Roads	do	Jan. 29, 1897	11	
Norfolk Yard	Jan. 29, 1897	Jan. 30, 1897	11	
Hampton Roads	Jan. 30, 1897	Feb. 1, 1897	11	
Norfolk Yard	Feb. 1, 1897	do	11	
Hampton Roads	do	Feb. 3, 1897	11	
Norfolk Yard	Feb. 3, 1897	do	11	
Hampton Roads	Jan. 3, 1897	Jan. 4, 1897	11	
Charleston, S. C	Feb. 6, 1897	Feb. 7, 1897	435	
Fleet off Charleston	Feb. 7, 1897	Feb. 8, 1897	7	
Charleston	Feb. 8, 1897	do	7	
Fleet off Charleston	do	Feb. 9, 1897	7	
Charleston	Feb. 9, 1897	do	7	
Fleet off Charleston	do	Feb. 10, 1897	7	
Charleston	Feb. 10, 1897	do	7	
Fleet off Charleston	do	Feb. 11, 1897	7	
Charleston	Feb. 11, 1897	do	7	
Fleet off Charleston	do	Feb. 12, 1897	7	
Charleston	Feb. 12, 1897	do	7	

Vessels serving on stations and duties performed by each—Continued.

FOURTH RATE—Continued.

Name of vessel and port visited.	Date of arrival.	Date of departure.	Distance sailed.	Remarks.
Fern, Lieut. Commander H. B. MANSFIELD, commanding, etc.—Continued.			*Knots.*	
Fleet off Charleston	Feb. 12, 1897	Feb. 13, 1897	7	
Charleston	Feb. 13, 1897	do	7	
Fleet off Charleston	do	Feb. 14, 1897	7	
Charleston	Feb. 14, 1897	Feb. 15, 1897	7	
Fleet off Charleston	do	do	7	
Charleston	Feb. 15, 1897	do	7	
Fleet off Charleston	do	Feb. 16, 1897	7	
Charleston	Feb. 16, 1897	do	7	
Fleet off Charleston	do	Feb. 17, 1897	7	
Charleston	Feb. 17, 1897	do	7	
Fleet off Charleston	do	Feb. 18, 1897	7	
Charleston	Feb. 18, 1897	do	7	
Fleet off Charleston	do	do	7	
Charleston	do	Feb. 19, 1897	7	
Fleet off Charleston	Feb. 19, 1897	do	7	
Charleston	do	do	7	
Fleet off Charleston	do	do	7	
Charleston	do	Feb. 20, 1897	7	
Fleet off Charleston	Feb. 20, 1897	do	7	
Charleston	do	do	7	
Fleet off Charleston	do	Feb. 21, 1897	7	
Charleston	Feb. 21, 1897	do	7	
Fleet off Charleston	do	do	7	
Charleston	do	Feb. 24, 1897	7	
Hampton Roads, Virginia	Feb. 27, 1897	Mar. 4, 1897	440	
Norfolk Yard	Mar. 4, 1897	do	11	
Hampton Roads, Virginia	do	Mar. 6, 1897	11	
Tompkinsville	Mar. 8, 1897	Mar. 9, 1897	264	
New York Yard	Mar. 9, 1897	Mar. 11, 1897	7	
Tompkinsville	Mar. 11, 1897	do	7	
New York Yard	do	Mar. 12, 1897	7	
Tompkinsville	Mar. 12, 1897	do	7	
New York Yard	do	Mar. 13, 1897	7	
Tompkinsville	Mar. 13, 1897	do	7	
New York Yard	do	Mar. 15, 1897	7	
Tompkinsville	Mar. 15, 1897	do	7	
New York Yard	do	Mar. 16, 1897	7	
Tompkinsville	Mar. 16, 1897	do	7	
New York Yard	do	Mar. 17, 1897	7	
Tompkinsville	Mar. 17, 1897	do	7	
New York Yard	do	Mar. 18, 1897	7	
Tompkinsville	Mar. 18, 1897	do	7	
New York Yard	do	Mar. 20, 1897	7	
Tompkinsville	Mar. 20, 1897	do	7	
New York Yard	do	Mar. 22, 1897	7	
Tompkinsville	Mar. 22, 1897	do	7	
New York Yard	do	Mar. 24, 1897	7	
Tompkinsville	Mar. 24, 1897	do	7	
New York Yard	do	Mar. 25, 1897	7	
Tompkinsville	Mar. 25, 1897	do	7	
New York Yard	do	Mar. 26, 1897	7	
Tompkinsville	Mar. 26, 1897	do	7	
New York Yard	do	Mar. 27, 1897	7	
Tompkinsville	Mar. 27, 1897	do	7	
New York Yard	do	Mar. 29, 1897	7	
Tompkinsville	Mar. 29, 1897	do	7	
New York Yard	do	Mar. 30, 1897	7	
Tompkinsville	Mar. 30, 1897	do	7	
New York Yard	do	Mar. 31, 1897	7	
Tompkinsville	Mar. 31, 1897	do	7	
New York Yard	do	Apr. 6, 1897	7	
Hampton Roads	Apr. 8, 1897	Apr. 9, 1897	299	
Norfolk Yard	Apr. 9, 1897	do	11	
Hampton Roads	do	Apr. 10, 1897	11	
Norfolk Yard	Apr. 10, 1897	do	11	
Hampton Roads	do	Apr. 13, 1897	11	
Norfolk Yard	Apr. 13, 1897	do	11	
Hampton Roads	do	Apr. 14, 1897	11	
Norfolk Yard	Apr. 14, 1897	do	11	
Hampton Roads	do	do	11	
Norfolk Yard	do	Apr. 16, 1897	11	
Hampton Roads	Apr. 16, 1897	Apr. 17, 1897	11	
Norfolk Yard	Apr. 17, 1897	do	11	
Hampton Roads	do	do	11	
Tompkinsville	Apr. 19, 1897	Apr. 21, 1897	273	

Vessels serving on stations and duties performed by each—Continued.

FOURTH RATE—Continued.

Name of vessel and port visited.	Date of arrival.	Date of departure.	Distance sailed.	Remarks.
Fern, Lieut. Commander H. B. MANSFIELD, commanding, etc.—Continued.				
			Knots.	
Wreck off Barnegat	Apr. 22, 1897	Apr. 22, 1897	64	
Tompkinsville	do	Apr. 23, 1897	64	
Grant's tomb, North River	Apr. 23, 1897	do	8	
Tompkinsville	do	Apr. 25, 1897	8	
Grant's tomb	Apr. 25, 1897	Apr. 27, 1897	8	
Thirty-fourth Street Dock	Apr. 27, 1897	do	4	
Grant's tomb	do	Apr. 28, 1897	4	
New York Yard	Apr. 28, 1897	Apr. 29, 1897	10	
Tompkinsville	Apr. 29, 1897	do	7	
New York Yard	do	do	7	
Tompkinsville	Apr. 30, 1897	Apr. 30, 1897	7	
New York Yard	do	do	7	
Tompkinsville	do	May 1, 1897	7	
New York Yard	May 1, 1897	do	7	
Tompkinsville	do	do	7	
New York Yard	do	May 3, 1897	7	
Tompkinsville	May 3, 1897	do	7	
New York Yard	do	do	7	
Tompkinsville	do	do	7	
New York Yard and pier	do	May 4, 1897	8	
Tompkinsville	May 4, 1897	do	7	
New York Yard and North River	do	May 5, 1897	9	
Tompkinsville	May 5, 1897	do	7	
New York Yard and North River	do	May 6, 1897	10	
Tompkinsville	May 6, 1897	do	7	
New York Yard	do	do	7	
Tompkinsville	do	do	7	
New York Yard	do	May 7, 1897	7	
Tompkinsville	May 7, 1897	do	7	
New York Yard	do	May 8, 1897	7	
Tompkinsville	May 8, 1897	do	7	
New York Yard	do	June 12, 1897	7	
Wreck off Fenwick Island	June 13, 1897	June 13, 1897	180	
Newport News, Va	June 14, 1897	June 16, 1897	130	
Norfolk Yard	June 16, 1897	June 17, 1897	12	
Hampton Roads	June 17, 1897	June 21, 1897	11	
Norfolk Yard	June 21, 1897	do	11	
Hampton Roads	do	June 23, 1897	11	
Norfolk Yard	June 23, 1897	do	11	
Hampton Roads	do	June 24, 1897	11	
Norfolk Yard	June 24, 1897	do	11	
Hampton Roads	do	June 28, 1897	11	
Norfolk Yard	June 28, 1897	do	11	
Hampton Roads	do	June 30, 1897	11	
Norfolk Yard	June 30, 1897	do	11	
Hampton Roads	do		11	
Total distance sailed			4,733	

B.

REPORT OF THE SUPERINTENDENT OF THE NAVAL ACADEMY.

UNITED STATES NAVAL ACADEMY,
Annapolis, Md., September 27, 1897.

SIR: I have the honor to submit my report of the operation and condition of the Naval Academy during the year preceding October 1, 1897.

The table following exhibits the number of cadets on probation at the Naval Academy on October 1, 1896, and again on June 5, 1897, after the annual examination, with the ensuing casualties:

Class.	October 1, 1896.	June 5, 1897.	Loss, per cent.
First, line division	38	37	2½
First, engineer division	13	11	15
Second	48	40	17
Third	60	54	10
Fourth	95	70	26
	254	212	16½

Number of cadets at the Academy October 1, 1897	259
Graduated June 4, 1897	47
Resigned	41
Dropped	1
Transferred to lower class by reason of physical disability	6
Transferred to higher class, having qualified	2
Entered May, 1897	37
Entered September, 1897	59

In May 59 candidates reported for examination, of which number 38 passed, 1 of whom was rejected for physical disqualification.

In September 104 candidates reported for examination, of which number 61 passed, 2 of whom were rejected for physical disqualification.

The record shows that 60 per cent of the candidates successfully passed the mental examinations, a larger percentage than has been the case for many years, which, in itself, is an encouragement. A much larger percentage of candidates would undoubtedly be successful if the oft-repeated recommendation were adopted to grant the permits to candidates a year in advance, and making it an absolute rule that there shall be but one examination each year for admission, which should be in May.

Several advantages would thereby accrue to the service as well as to the candidates; a longer time for preparation, a saving of money to the candidates by an avoidance of a special course of preparation, a more substantial preparation than can be given by the cramming system now in vogue, which leads to momentary success, but eventual impoverishment of mental faculties; and, lastly, the Academy would have the entire class as a homogeneous body for practical training through the summer months, whereas under the present system but one-third of the members of the fourth class have this valuable training. It is my opinion that no more important reform can be made than this to enhance the efficiency of the Naval Academy.

The routine of practical exercises followed by the fourth class from the middle of May until the opening of the academic year on October 1 is shown below:

8:30 to 10:00 a. m.	Setting up drill in the armory.
10:20 to 12:00 m.	Swimming drill in the natatorium until the cadets are proficient. For all who are proficient in swimming this period is given to marline spike seamanship and other practical work in the rigging and sail lofts.
4:00 to 6:00 p. m.	Drill in the cutters with oars and under sail.
8:00 to 9:00 p. m.	Gymnasium drill.

No more efficient system can be devised for preparing the sound body to enter upon the academic work which is to develop the sound mind. Moreover, those who have this training attain a familiarity with the water and with handling boats, which advantage will abide with them through their professional lives.

From this experience are debarred all those candidates held back for a later examination, or those who do not receive their permits to appear until after July 1, all of whom should not be allowed to report until the following May.

Thirty-six members of the class which completed the four years' course in 1895 passed the final examination in May and were assigned, 23 to the line, 2 to the Marine Corps, and 11 to the Engineer Corps.

At the conclusion of the annual examination, 150 cadets of the first, second, and third classes were transferred to the *Monongahela* and 10 engineer cadets to the *Standish* for the summer practice cruises. The cadets of the fourth class, 37 in number, were quartered on board the *Santee* for practical training.

The *Monongahela* extended her cruise to Madeira, as during the two years preceding, reaching Chesapeake Bay upon her return on August 14. The cruise terminated at the Naval Academy on August 28 in order to permit the usual leave of absence to cadets to visit their homes for a month. Under the efficient control of Commander Edwin White, the commandant of the cadets, the results of the practical training during three months have been of inestimable benefit to the cadets, both in professional and physical features. The best that can be done with inadequate means has been accomplished with the vessel which remains as our dependence.

The *Standish* has proven herself to be, in her renewed condition, an excellent vessel for the purpose of practical training of the engineer cadets. During her absence all the principal shipbuilding and engineering establishments from Newport News, Va., to Bath, Me., were visited, the cadets required to take ample notes and sketches, being guided by daily orders issued by the commanding officer, Lieutenant McCrackin. The cadets being under the personal direction of P. A. Engineer U. T. Holmes, worked intelligently and to the end of accomplishing only that which will be of benefit to them in the year of academic work to follow. The journals and notebooks indicate strongly the wisdom of this course in preference to the alternative of machine-shop drill at the academy during the summer.

Upon the completion of the *Monongahela's* cruise six cadets of the first class relinquished a part of their leave and embarked on board the *Robert Center*, the cutter yacht belonging to the Naval Academy, for a cruise in the bay. The vessel was placed entirely under their control with a crew of several men, with the most favorable and encouraging results. The cruise extended over a period of ten days and as far as Hampton Roads.

This circumstance is mentioned here to show that, within a limited time and under proper encouragement, there is being developed a disposition to look upon the water as the proper sphere for the evolution of naval officers.

During the three years now ending the resources have increased from nearly nothing to a sloop yacht, four catboats, and several eight-oared shells for the cadets to regard as their own, and a corresponding tendency to use their resources.

Much remains to be done, and if the wisdom of furnishing two or more small brigs could be appreciated and the means afforded to buy or build them, we would soon see a larger development of that spirit which induced the six cadets in 1897 to go on a cruise which has as a result not only healthful pleasure but professional attainment.

The Naval Academy and the naval service will soon see the fruition of a hope which has long animated those who realize what is best in training young officers, in the building of the sailing practice vessel. This vessel will be the forerunner of others, and it can not be completed too soon.

With two vessels of that class for summer cruising, the *Standish* for the training of engineer cadets during the summer term, and the *Newport* for the routine drills of all cadets in ordnance, steam engineering, etc., through the academic year, that part of the educational plant will be complete.

But two of the twelve steam cutters authorized two years since have yet been delivered, and these boats are essential for the development of fleet tactical drill. Their completion should be hastened.

During the year now ending the improvements accomplished have been the building of two double houses for instructors, grading the land forming the last purchase, converting the same into an agreeable feature of the grounds by the planting of trees, girdling it with well-constructed roads, etc. The sea walls have been extended, a bulkhead of piling made on the east front on the line of the proposed extension, the new sewer system has been completed, proper sanitary water closets built, and a new outfit of porcelain-lined bath tubs installed for the cadets, a new driveway of vitrified bricks and a granolithic pavement have been constructed in front of Blake Row, and porches added to the houses composing this row. The policy has been consistently followed of improving and repairing only such parts of the Academy as will remain intact upon the adoption of the plan of rehabilitation, which was submitted by the Board of 1895. As a matter of unquestioned fact, the remaining buildings are not worthy of repairs. The work of rehabilitation can be not much longer delayed.

The Naval Academy has marked an important advance in its career as an educational institution by the incorporation of a post-graduate course of study in naval construction. The course opens with three naval cadets of the class which completed the four years' course in June, 1897, a similar number to be added each year until nine cadets are undergoing this valuable training, the length of the course to be three years. The time is ripe to demonstrate the fact that we are equal to the task of educating our young men in this country, and to be no longer dependent upon foreign institutions. It is recommended that there shall soon be established at the Naval Academy post-graduate courses of study in all technical branches of the profession, making it obligatory for all graduates to return for certain periods after the initial cruise on a sea-going vessel, the academic course to be restricted to four years in lieu of the present six years' course. By this curtailment of the course to four years, some of the higher branches of applied mathematics could be safely omitted, provided there should surely follow a post-graduate course.

An increase of the present plant would be required but to no greater extent than is absolutely needed for the proper equipment of a great national institution which this should be.

The year which has just closed has been one of the most satisfactory in the history of the Naval Academy. Officers and cadets in their several spheres of duty have endeavored cheerfully and zealously to elevate the tone and character of the institution; the results have been evident to the most superficial observer, they have been indicated by the entire absence of friction, bad conduct and serious infractions of regulations. And at this time I can not refrain from inviting attention to a recommendation which appears in the Report of the Board of Visitors in order to express my entire disapprobation. In paragraph No. 6 of recommendations will be found these words: "That the officers and cadets be required to salute the national colors by removing their hats (which they do not wear in uniform), and that the custom of saluting the national colors with the hand, as now practiced, be discontinued." The recommendation is ambiguous in respect to the present method of saluting, for it is difficult to understand what is meant by saluting the national colors with the hand. The intention in the recommendation is, evidently, that an absolutely non-military salute shall be substituted for the only recognized and proper military salute the world over wherever a military spirit exists. This may be looked upon as a minor matter, but it is close attention to small things which produces the finest result, and it can not be denied that strict observance of military etiquette in the matter of salutes has done more than any other feature to elevate tone and bearing at the Naval Academy. No more, no less, is being done than strict compliance with existing regulations and the custom among military people. What may appear perfectly proper in a civilian lifting his hat and uncovering upon all occasions is entirely incongruous in a uniformed officer or cadet or man. This point is alluded to here for the reason that it touches closely the personal management of the institution, and although errors may be and probably are committed, this is not one of them.

Again, the inference might be drawn from the discussion of June 3, as exhibited in the published minutes, that the attention of the Board of Visitors had been directed to so-called line-and-staff differences at the Naval Academy, whereas it may safely be stated that no such differences have existed. If the purpose was to open the question of the general service, it might be claimed that the Naval Academy was under scrutiny alone, and to my knowledge officers of all branches of the service at this station have labored in harmony to produce the best results attainable.

Copies of the reports of the commanding officers of the practice ships are transmitted herewith.

Very respectfully,

P. H. COOPER,
Captain, United States Navy, Superintendent.

CHIEF OF THE BUREAU OF NAVIGATION,
Navy Department, Washington, D. C.

C.

REPORT OF THE COMMANDANT OF THE NAVAL TRAINING STATION.

UNITED STATES NAVAL TRAINING STATION,
Newport, R. I., July 27, 1897.

SIR: I have the honor to submit the following report of the operations at the Training Station for the year ending June 30, 1897:

On December 15, 1896, Commander F. W. Dickins, U. S. N., was relieved of command of the Training Station by Commander John McGowan, U. S. N.

The number of apprentices under instruction at the station for the year was 795, as follows:

At the station June 30, 1896	268
Received from the *Vermont*	362
Received from the *Richmond*	96
Received from the *Wabash*	56
Received from enlistment at station	5
Received from desertion	6
Received from the *Alliance*	1
Received from the *Essex*	1
Total	795

There were transferred from the station the following:

To *Alliance*	268
To *Essex*	163
To *Wabash*	1
To *Franklin*	2
To *Cincinnati*	1
To *Vermont*	3
To *Montgomery*	1
To *Castine*	3
To *Puritan*	2
To *Marblehead*	1
To *Columbia*	1
To *Massachusetts*	2
To *Raleigh*	1
Total	449

The following were discharged:

Under General Order No. 414	18
For inaptitude	5
Undesirable	13
Physical disability	9
Bad conduct, sentence summary court-martial	2
Illegal enlistment	1
Total	48

The following desertions occurred:

From duty	4
From leave	14
From Naval Hospital	1
Total	19

RECAPITULATION.

At the station June 30, 1896	268	
Received during year	527	
		795
Transferred to ships	449	
Discharged	48	
Deserted	19	
		516
Remaining at station June 30, 1897		279

The station routine has been carefully followed with the exception of a few changes rendered necessary by changing conditions. The apprentices have been drilled on the *Constellation*, with sails and spars, and in boats, whenever the weather was suitable for such drills. If two small brigs, of about 300 tons each, could be built and attached to the Training Station, they would be of great assistance in training the boys and accustoming them to ship life. They could be kept constantly in use during good weather, cruising in Narragansett Bay and Block Island Sound. The advantages to be derived from giving the boys frequent cruises in small vessels until such time as they are transferred to a cruising training ship are self-evident.

Early in February the new hospital building was ready for use; so all patients who were in the sick quarters, building No. 6, were transferred to the hospital, and work was at once commenced altering the interior of building No. 6 into quarters for apprentices on first arrival at the station. The effect of keeping the "newcomers" by themselves until they have been taught to care for their persons and clothing, and forming them into sections and companies before transfer to the gymnasium, has been excellent.

The necessity for a suitable building for mess hall, dormitories, kitchen, etc., for the apprentices is urgent. It is a hardship to march the boys during the inclement weather of winter and summer a distance of several hundred yards from building No. 2, where they are now quartered and instructed, to buildings Nos. 10 and 11, where they are messed. They have only rubber blankets, which they draw over their heads and shoulders to protect them from snow and sleet during the winter and rain during the summer. My predecessors at the station have urged the necessity for such a building, and I most earnestly renew it.

During July, 1896, mains were laid and connection made with the Newport Water Works Company, and since that time all water used has been furnished by that company.

The station ship *Constellation* is showing signs of weakness and dry rot. I would suggest that, when the *Monongahela* finishes her service as practice ship at the Naval Academy, she be sent here to replace the *Constellation*. If the *Lancaster*, with her modern battery, search lights, and torpedo tube, could be stationed here, it would add much to the instruction that could be given to the apprentices during their stay at the station, and familiarize them with some of the conditions they meet when transferred to a cruising training ship and general service.

In making estimates for the next fiscal year, I will submit estimates for a building for mess hall, dormitories, etc., and for two small brigs.

Very respectfully,

JOHN McGOWAN,
Commander, U. S. N., Commanding.

The CHIEF OF BUREAU OF NAVIGATION,
Navy Department, Washington, D. C.

D.

REPORT OF THE HYDROGRAPHER TO THE BUREAU OF NAVIGATION.

HYDROGRAPHIC OFFICE, NAVY DEPARTMENT,
Washington, D. C., September 29, 1897.

SIR: I have the honor to submit the following report of the work of the Hydrographic Office for the fiscal year ending June 30, 1897:

On April 8 Captain Charles D. Sigsbee, U. S. N., was detached from duty as hydrographer in charge of this office and was relieved by Lieutenant-Commander E. H. Gheen, U. S. N., who remained in charge until succeeded, on April 19, by Commander J. E. Craig, U. S. N., who then became hydrographer.

In the work of the several divisions advances have been made to increase the usefulness of the office in various directions, resulting from undertakings of the former hydrographer, Captain Sigsbee, some of which were completed at the time of his detachment.

His work during three years, in assiduous efforts to secure a satisfactory set of exemplars of cloud forms, has, under his special supervision, resulted in the production and publication of illustrations that convey a clear idea of the various types of clouds. These illustrations are intended to assist the weather observers for the Hydrographic Office in making and recording their observations.

Coincident with the publication of a chart giving these illustrations, is the substitution of the international system of cloud classification for that hitherto employed by the Hydrographic Office.

The international system has lately been universally adopted by government meteorological departments, and it is desirable that the record of cloud observations made at sea should be directly comparable with the records of those made on shore. The illustrations, therefore, were made to correspond to the new nomenclature of clouds.

The gathering of information pertaining to ports of the world has been continued. Through the courtesy of the Department of State, contributions to the knowledge thus gained were received from 228 United States consulates during the year. This information has been carded under separate heads.

For the treatment of marine meteorological data by the Hollerith system, the instruments, cards, and filing boxes have been received, and the new method for filing and averaging the data has been put on a working basis.

DIVISION OF CHART CONSTRUCTION.

With the completion of the charts of Honduras Bay, Santo Tomas Bay, Hospital Bight, and Port Livingston, in Guatemala, of Puerto Cortez in Honduras, and of the Bass Islands and vicinity in the western part of Lake Erie, the results of the recent surveying operations carried on by the Navy Department have been made available for the use of navigators, with the exception of the survey of the west coast of Lower California, which, during the last two winters, was extended by the completion of the main triangulation between Magdalena Bay, on the west coast of the peninsula, and Pescadores Point, near La Paz, on the east coast, and by the development of the topography and hydrography within those limits; and also, with the exception of the survey of Jiquilisco Bay, Salvador, by the officers of the U. S. S. *Marion* and *Bennington.*

The results of the survey of the Mexican coast, carried on during the winter of 1896 and 1897, were, at the close of the year, in course of preparation for transmission to the Department by the officers that lately executed the survey on board the U. S. S. *Thetis;* and the results of the survey of Jiquilisco Bay were likewise being prepared for transmission by the officers of the U. S. S. *Bennington.*

At the opening of navigation on the Great Lakes, in 1897, the commanding officer of the U. S. S. *Michigan*, under orders from the Bureau of Navigation, and with detailed instructions furnished by the Hydrographic Office, began the examination of those localities in the United States waters of the Great Lakes, in which dangers to navigation, not shown upon the charts, have, from time to time, been reported to exist.

During the year 63 nautical charts were finished in a manner to provide for their permanent issue, and 9 others were published by the lithographic process for ephemeral use. The general localities covered by these new charts are the Great Lakes of North America and the American Republics of Brazil, Chile, Honduras, Guatemala, and Venezuela.

Sixty-seven new charts, in course of construction, were unfinished at the end of the fiscal year. They provide for the extension of the series of general coast charts, now completed for the Western Hemisphere and for the coasts of China and Japan, from the Cape of Good Hope throughout the shores of the Indian Ocean to Singapore; for the completion of the series of special coast charts of the east coast of Brazil; for the extension of the series of special coast charts of Mexico from Magdalena Bay to La Paz, Lower California; for the extension of the series of special coast charts of British Columbia so as to cover the entire region between the Strait of Juan de Fuca and the Alaskan boundary; and for the construction of harbor charts of the remaining important places of the Empire of Japan, not hitherto represented upon the charts of the Hydrographic Office.

At the close of the year there were in the possession of the Department 939 engraved chart plates which, having the latest available information incorporated into them, are ready for the issue, at short notice, of the most accurate charts to the vessels of the Navy and the mercantile marine.

The total number of nautical charts printed by this Division and delivered to the other divisions of the office for issue to navigators during the fiscal year ending June 30, 1897, is 109,125 copies. This number does not include the illustrative charts that were printed to accompany the notices to mariners and to be bound in books.

Computations were made for the projection of accurate tracks for the trials of speed of the new United States vessels *Iowa*, *Wilmington*, *Helena*, *Annapolis*, and *Nashville.* And the charts of the projected tracks were drawn for the use of the Board of Inspection and Survey.

The principal details of the various branches of the work are set forth in the following statistical tables:

Charts engraved on copper during the fiscal year ending June 30, 1897.

Location.	Catalogue No.	Total cost of construction.	Title.	Scale.
North America, Canada, British Columbia, Vancouver Island.	1450	$1,117.55	From Barclay Sound to Nootka Sound	M. = 0.5
North America, Canada, Lake Huron, Georgian Bay.	1471	956.96	Parry Sound to French River	M. = 0.75
North America, west coast of Lower California.	1493	2,105.59	Abreojos Point to Cape San Lazaro	M. = 0.25
South America, Brazil	1542	844.70	Santa Catharina Island, including Santa Catharina Strait and the adjacent coast	M. = 1.0
			Plan of Desterro Anchorage	M. = 3.0
			Plan of south entrance to Santa Catharina Strait	M. = 3.0
Japan, Shikoku	1546	60.47	Mitsukue, Minato	M. = 4.3
United States, Lake Erie, Ohio	1547	439.64	Cleveland Harbor and Cuyahoga River	400 feet = 1.0
South America, Chile	1552	78.00	Anna Pink Bay, plan of Port Refuge	M. = 0.5 M. = 1-⅓
South America, Chile, Guaitecas Islands.	1561	149.00	Ports Low and Melinca and approaches	M. = 1.0
			Enlarged plan of Inner Port (Port Low)	M. = 2.0
South America, Chile	1554	83.88	Anchorages in Patagonia:	
			Port Chico	1,000 yds. = 3.65
			Port Choros	M. = 7.3
			Port Grande	M. = 7.3
Do	1555	95.00	Anchorages in Tierra del Fuego:	
			Banner Cove	M. = 2.7
			Haberton Harbor	M. = 5.0
			Packewaia and Chasseurs anchorages	M. = 2.4
Do	1556	83.49	San Andres Bay	M. = 1.0
			Vallenar Road, Chonos Archipelago	M. = 1.0
Do	1562	94.83	Anchorages in Magellan Strait:	
			Bay of Three Passes, English Reach	M. = 3.7
			Butler Bay, Crooked Reach	M. = 4.8
			Guirior Bay, Long Reach	M. = 4.4
			Volage Bay, Long Reach	1,000 yds. = 2.8
			Valentine Harbor, Sea Reach	M. = 1.45
Do	1551	212.14	Anchorages in Magellan Strait:	
			Notch Cove	M. = 5.94
			Carreras Bay	M. = 3.93
			Snug Bay	M. = 3.93
Do	1559	106.88	Huentelauquen Cove	M. = 7.14
			River Maule entrance	M. = 0.49
Africa, southwest coast	1558	297.75	Table Bay	M. = 2.8
South America, Chile	1563	89.84	Esmeralda Cove	1,000 yds. = 3.5
Do	1564	54.85	Port Corral	M. = 3.45
Do	1565	54.78	Lobos, Pescadores, and Piojo coves, and adjacent coast	M. = 2.8
South America	1569	122.64	Port Montt, Reloncavi Sound	M. = 7.1
			Port San Pedro, Corcovado Gulf	M. = 1.95
			Sheep and Small coves, Guafo Island	M. = 1.95
North America, Lake Michigan	1580	1,023.78	Green Bay and approaches	M. = 0.4

Central America, Guatemala, Honduras Bay.	1573	174.87	Hospital Bight	M. = 4.0
Do	1574	286.89	Port Livingston and approaches to Dulce River	M. = 8.0
South America, Chile, Patagonia	1570	292.32	Anchorages between Gulf of Trinidad and Gulf of Penas:	
			Flotten Harbor	M. = 2.36
			Port Barbara	M. = 1.42
			Albatross Harbor	M. = 2.35
			Port Albatross (Kaiser Harbor)	M. = 3.26
			Preussische Bay	M. = 1.42
			Schroder Ground	M. = 2.40
			Spengler Bight	M. = 2.40
			Deutsche Narrows	M. = 1.42
			Heinrichs Fiord	M. = 2.35
			Bachem Ground	M. = 2.35
			Dreising Bay	M. = 2.35
			Jungfern Ground	M. = 2.30
			Clara Bay	M. = 2.32
			Kosmos Harbor	M. = 5.50
			Bethel and Dinwoodie bays	M. = 1.75
South America, Chile	1566	126.25	Camarones Cove (De Cuya Cove)	M. = 2.25
			Michilla Cove	M. = 2.25
			Chica or Buena Cove	M. = 2.25
			Gualaguala Cove	M. = 2.25
			Colorado Cove	M. = 7.0
			Coloso Cove	M. = 7.0
North Pacific Ocean	[1] 1401	109.32	The invariable data comprising the forecast shown on the Pilot Chart of the North Pacific for January.	1° long. = 0.2
Do	[2] 1401	99.01	The invariable data comprising the forecast shown on the Pilot Chart for February	1° long. = 0.2
Do	[3] 1401	95.45	The invariable data comprising the forecast shown on the Pilot Chart for March	1° long. = 0.2
Do	[4] 1401	108.25	The invariable data comprising the forecast shown on the Pilot Chart for April	1° long. = 0.2
Do	[5] 1401	80.33	The invariable data comprising the forecast shown on the Pilot Chart for May	1° long. = 0.[illegible]
Do	[6] 1401	80.33	The invariable data comprising the forecast shown on the Pilot Chart for June	1° long. = 0.2
Do	[7] 1401	96.10	The invariable data comprising the forecast shown on the Pilot Chart for July	1° long. = 0.2
Do	[8] 1401	98.37	The invariable data comprising the forecast shown on the Pilot Chart for August	1° long. = 0.2
Do	[9] 1401	53.50	The invariable data comprising the forecast shown on the Pilot Chart for September	1° long. = 0.2
Do	[10] 1401	98.70	The invariable data comprising the forecast shown on the Pilot Chart for October	1° long. = 0.2
Do	[11] 1401	101.72	The invariable data comprising the forecast shown on the Pilot Chart for November	1° long. = 0.2
Do	[12] 1401	101.91	The invariable data comprising the forecast shown on the Pilot Chart for December	1° long. = 0.2
South America, Chile	1567	193.54	Port Lagunas	M. = 1.4
			Port Yates	M. = 1.75
			Port Peres, Aysen Inlet	M. = 1.7
			Port Tangbac, Moraleda Channel	M. = 2.35
			Port Frances, Moraleda Channel	M. = 1.7
			Port Chacabuco, Aysen Inlet	M. = 1.7
			Port San Miguel, San Ramon Bay	M. = 2.46
			Harchy Bay, Chacabuco Channel	M. = 1.23
Japan, Shikoku, west coast	1557	302.19	Yawatahama Harbor, and adjacent bays	M. = 2.0
Japan, Shikoku	1553	232.72	Tachibana Ura	M. = 2.0
Central America, Gulf of Honduras	1572	400.40	Port Cortes	M. = 4.0
Index Chart	G	76.27	Bering Sea and adjacent regions	1° long. = 0.145
Do	V	42.55	West Africa and Cape Verde Islands	1° long. = 0.44
Do	L	61.06	South Africa	1° long. = 0.26

Charts engraved on copper during the fiscal year ending June 30, 1897—Continued.

Location.	Catalogue No.	Total cost of construction.	Title.	Scale.
Index Chart	M	$50.00	Indian Ocean	1° long. = 0.23
Do	U	46.02	Northwest Africa and Azores, Madeira, and Canary Islands	1° long. = 0.4
North America, Gulf of Mexico	1577	318.09	Tampico Harbor	M. = 0.4
North Atlantic Ocean, Canary Islands.	1548	629.94	Gran Canaria	M. = 0.5
			Plans of La Luz Harbor	100 yds. = 0.6
			Las Palmas Bay	M. = 3.56
Chile	1578	82.13	Conchali Bay and Viloe Road	M. = 3.6
Central America, Guatemala, Honduras Bay.	1575	670.76	Santo Tomas Bay with Puerto Barrios and Santo Tomas Anchorages	M. = 6.0
South America, anchorages in Tierra del Fuego.	1579	259.46	Approaches to Ushuwaia:	
			Mission Station	M. = 1.0
			Romanche Bay	M. = 1.8
			Voilier Cove	2,000 yds. = 2.5
			Awaiakirrh Cove	2,000 yds. = 2.75
			Burnt Island Anchorage	2,000 yds. = 2.5
			Fleuriais Bay	M. = 1.4
			Lapataia Bay	M. = 1.25
			Lort Bay (St. Joachim Bay)	2,000 yds. = 1.5
			Port Maxwell	M. = 1.5
			Baleines Bay	2,000 yds. = 2.6
			Coralie Cove	M. = 1.5
			Indian Bay	M. = 1.5
Central America, Guatemala	1576	825.78	Honduras Bay (Amatique Gulf)	M. = 2.0
North America, Canada, Lake Huron, North Channel.	1472	1,350.13	Little Current to Mississauga Strait	M. = 0.75
West Indies	1614	47.64	Ragged Island Harbor	M. = 6.7
South America, Chile, Chonos Archipelago.	1616	79.61	Pulluche Channel	M. = 1.46
Canary Islands, Tenerife	1621	125.29	Santa Cruz Road	M. = 7.4
South America, east coast Brazil	1608	461.12	Santos to Paranagua	M. = 0.25
South Coast of Africa	1601	619.26	Algoa Bay to Cape Town	M. = 4.5
South America, east coast Brazil	1609	468.42	Paranagua to Santa Cartharina Island	M. = 0.25
West Indies, Exuma Sound	1612	71.36	Wax Cay Cut	M. = 5.8
Do	1613	97.73	Highborn Cut	M. = 3.0
Asia Minor	1549	304.57	Mediterranean Sea, Mersina Roadstead	M. = 4.0
West Indies, Great Bahama Bank	1615	58.41	Clarence Harbor	M. = 3.84
North America, United States and Canada.	1582	1,416.02	Lake St. Clair and St. Clair and Detroit rivers	M. = 0.6
			Plans of The St. Clair Flats	M. = 1.5
			Port Huron	M. = 1.5
			St. Clair River:	
			Fromefield to St. Clair	M. = 1.5
			Approaches to Marine City	M. = 1.5
			Detroit River between the city of Detroit and Lake St. Clair	M. = 1.5
Total, 63 charts		19,315.56		

Charts lithographed and published during the year ending June 30, 1897.

[In the following table the scale of the chart is expressed by the use of the abbreviations D. long., the length of a degree of longitude on the equator; D. lat., the length of a degree of the meridian in the middle latitude of the chart; M., the length of a nautical mile, and St. M., the length of a statute mile.]

Title.	Scale.	Number of copies.	Total cost.	Remarks.
Pilot Chart of the North Atlantic Ocean	D. long. = 0.27	48,491	$1,851.63	Issued monthly in cooperation with the division of marine meteorology.
Pilot Chart of the North Pacific Ocean	D. long. = 0.2	24,383	1,306.63	Do.
Locations of the Fishing Fleets, July and August, 1896.		250	1.25	Illustrated by a small chart. Also printed upon the Pilot Chart of the North Atlantic Ocean for July, 1896.
The Sailing Route from San Francisco to the Equator.		100		Illustrated by a small chart. Also printed upon the Pilot Chart of the North Pacific Ocean for August, 1896.
Recent Accessions to our Knowledge of Ocean Currents, obtained through floating bottles.		100		Illustrated by a chart showing the probable route, the positions of deposit and of recovery of bottle-papers in the Atlantic which were returned to the United States Hydrographic Office between December 1, 1895, and June 1, 1896, and also showing the drift of three derelict schooners. This chart was accompanied by tables giving date and geographical position of the deposit and of the recovery of bottles in the Atlantic, the Pacific, and the Indian oceans. Also printed as a supplement upon the reverse side of the Pilot Chart of the North Atlantic Ocean for August, 1896.
Winds of the South Atlantic Adjacent to the Coast of Brazil.		110		Illustrated by two small charts. Also printed upon the Pilot Chart of the North Atlantic Ocean for August, 1896.
The Typhoon Season in East Asiatic Waters		120		Illustrated by two diagrams. Also printed upon the Pilot Chart of the North Pacific Ocean for September, 1896.
The Sudden Squalls of March 26, 1896, on the North Atlantic.		120		Illustrated by a small chart. Also printed upon the Pilot Chart of the North Atlantic Ocean for September, 1896.
Graphical Solution of Spherical Triangles		15	35.36	A graphical method for navigators, by Commander C. D. Sigsbee, United States Navy, consisting of a great circle protractor, accompanied by explanatory text and nineteen illustrative diagrams. Also printed upon the reverse side of the Pilot Charts of the North Atlantic and of the North Pacific oceans for October, 1896.
Review of Cyclone of September 5–10, 1896		250		Illustrated by a small chart. Also printed upon the Pilot Chart of the North Atlantic Ocean for October, 1896.
The Chronology and Geographic Distribution of Icebergs in the Southern and Antarctic Oceans.		200	88.14	Illustrated by two circumpolar charts—one showing, in four colors, the seasonal limits of ice; the other showing, in four colors, the reported bergs of each season. Also printed upon the reverse side of the Pilot Charts of the North Atlantic and of the North Pacific oceans for November, 1896.
The Typhoon of July 24, 1895		220		Illustrated by a small chart. Also printed upon the Pilot Chart of the North Pacific Ocean for November, 1896.
Charts and Review of Weather Conditions off the American Coast, October 10–13, 1896.		200		Illustrated by four small charts. Also printed upon the Pilot Chart of the North Atlantic Ocean for November, 1896.
A Winter Anticyclone on the North Atlantic, December 27, 1894.		180		Illustrated by a small chart. Also printed upon the Pilot Chart of the North Atlantic Ocean for December, 1896.
Ice on the Grand Banks during the month of February.		105		Illustrated by a small chart. Also printed upon the Pilot Chart of the North Atlantic Ocean for February, 1897.
The North Atlantic Gales of February 6, 1897		100		Illustrated by a small chart. Also printed upon the Pilot Chart of the North Atlantic Ocean for May, 1897.

Charts lithographed and published during the year ending June 30, 1897—Continued.

Title.	Scale.	Number of copies.	Total cost.	Remarks.
The International System of Cloud Nomenclature.	....	100	....	Also printed upon the Pilot Charts of the North Atlantic and of the North Pacific oceans for June. 1897.
Recent Accessions to our Knowledge of Ocean Currents, obtained through floating bottles.	....	100	$27.42	Illustrated by a chart showing the probable route, the positions of deposit and of recovery of bottle-papers in the Atlantic which were returned to the United States Hydrographic Office between June 1, 1896, and June 1, 1897. This chart was accompanied by tables giving date and geographical position of the deposit and of the recovery of bottles in the Atlantic and in the Pacific and Indian oceans. Also printed as a supplement upon the reverse side of the Pilot Charts of the North Atlantic and of the North Pacific oceans for July, 1897.
Hydrographic Office Chart No. 1549. Mersina Roadstead, Mediterranean Sea, Asia Minor.	M.=2.95 inch.	203 1,410	39.34	Printed for the division of chart issue and supply. Printed for the Notice to Mariners, No. 38 of 1896.
The Magnetic Variation and Dip for the year 1897.	10° long.=1.2 in.	202	306.34	Printed for the division of chart issue and supply.
Hydrographic Office Chart No. 1585. Navigator's Guide. Chart of the English Channel, with its tides and currents. Hydrographic Office Chart No. 1610.	D. long.=3.45 in.	490	568.99	Accompanied by two tidal diagrams, one for northern (English) coast and one for the southern (French) coast. Printed for the division of chart issue and supply.
Hydrographic Office Charts Nos. 1623, 1624, 1625, 1626, 1627, 1628, 1629.	M.=1 inch.	200 each.	153.94	A series of charts showing that channel of the Orinoco River from Ciudad Bolivar to the mouth of the river which was traversed by the U. S. S. Kearsarge in 1892.
Graphical Solution of Spherical Triangles (by Commander C. D. Sigsbee, U. S. N.).	....	2,000	381.84	Printed for the division of chart issue and supply.
Base Chart, Sheet I, North Atlantic Ocean......	D. long.= 0.175	807	5.14	Printed for the division of marine meteorology.
Base Chart, Sheet II, North Pacific Ocean.......	D. long.= 0.2	410	27.07	Do.
Base Chart, Sheet III, North Pacific Ocean......	D. long.= 0.2	414		
Illustrations of United States Navy Uniforms, Plates I, V, XI, XIV, XV, XVI, XVII, XVIII, XIX.	....	2,600 each.	168.95	Printed for an edition of the Book of Regulations concerning the Uniforms of the United States Navy.
Hydrographic Office, Index Chart F (Great Lakes).	....	618	28.56	Showing the limits of Hydrographic Office Charts in black, of United States Engineer Charts in blue, and of British Admiralty Charts in red. Printed for the division of sailing directions.
Hydrographic Office, Index Chart AX	....	118	15.45	Printed for the division of chart issue and supply.
Current Charts of Lake Superior, Lake Michigan, Lake Huron, and Lakes Erie and Ontario.	Various.	620	55.41	Printed for an edition of Hydrographic Office publication, No. 108.
Index Chart of the West Coast of South America.	....	630	47.19	Printed for an edition of Hydrographic Office publication, No. 89.
Small Chart showing Ice Limits in the South Atlantic.	....	630		
Illustrations of United States Navy Uniforms, Plates IX and XXVI.	....	2,625	27.47	Reprinted for the Book of Regulations concerning the Uniforms of the United States Navy.
Storm on the Great Lakes. May 27–30, 1896.......	....	6,290	75.21	Illustrated by four synoptic charts. Printed for the Special Notice to Mariners of the Great Lakes, September 1, 1896.
Storm central over Kansas, April 6, 1896, 8 a. m..	....	5,300	58.09	A synoptic chart. Printed for Special Notice to Mariners of the Great Lakes, September 1, 1896.
Weather Conditions and Storm on the North Atlantic Ocean, October 3, 1894, Greenwich noon.	....	5,300		

Chart showing Location of Notice Boards on Coast of Vancouver Island.		1,500	21.24	Published in Notice to Mariners, No. 31 of 1896.
Princess Alice Bank (Azores)	M. =0.5 inch.	1,410	8.48	Published in Notice to Mariners, No. 38 of 1896.
Gorda Banks, found by U. S. S. Thetis, March, 1897, off the coast of Lower California, near San Jose del Cabo.	M. =2.0 inch.	1,315	35.10	Published in Notice to Mariners, No. 17 of 1897.
Nansen's Polar Journey, 1893-1895, in the ship Fram.		1,180		Printed upon copies of Hydrographic Office Chart No. 1531, published April, 1896.
Plan of English Harbor, Fanning Island	M. =11.8	56	28.06	Printed and pasted upon copies of Hydrographic Office Chart No. 587.
Time Report blanks		14,464	22.73	Printed for the Hydrographic Office.
Hydrographic Office Weather Report Record, consisting of cover and 25 leaves.		15,000	366.64	Printed for the division of marine meteorology.
Hydrographic Office Weather Report Record, consisting of cover and 41 leaves.		5,000		
Hydrographic Office Abstract Storm Log, consisting of cover and 20 leaves.		5,300	129.39	Do.
Two Forms for Computing the L. M. Z. Problem		500	5.59	Printed for the division of chart construction.
Form II, Napier's Diagram		1,160	25.02	Printed for the Bureau of Equipment. Department of the Navy.
Form V, the Dygogram		1,164		
Total			5,911.67	

New editions of 364 of the 939 have been prepared, and of this number the following have been partially redrawn and reengraved to incorporate recent information and surveys:

Charts extensively corrected during the fiscal year ending June 30, 1897.

Chart No.	Cost of drawing, engraving, printing, and material.	Title.
1108	$75.34	Gulf of St. Lawrence, South Coast of Quebec.
824 a	42.38	South Pacific Ocean; Sheet II, Eastern Middle Sheet, Upper Part.
95	171.14	Pacific Ocean, Upolu Island, Apia Harbor, etc.
452 e	20.49	South America: Port Harriss. (Follows 260.)
1170	80.73	Singapore to Sunda Strait, with Western Part of Java Sea.
581 b	93.99	Newfoundland, Southern Portion.
282	276.03	France: South Coast, Mediterranean Sea, Middle Sheet.
923	156.73	Track Chart of the World.
1285	146.85	China: Amoy Harbor.
348	55.84	Jamaica, South Coast, Port Royal and Kingston Harbors, etc.
929	229.63	Hongkong Harbor and Approaches.
526	202.36	North Pacific Ocean, Sheet I.
967	94.64	Mexico, East Coast. Vera Cruz and Anchorages of Anton Lizardo.
825	61.40	South Pacific Ocean, Sheet III, Western Middle Sheet, Lower Part.
916	5.27	Cuba, South Coast. Approaches to Ports Casilda and Masino, with Adjacent Anchorages; Plan of Port Casilda.
1306	251.63	British Columbia. Esquimault and Victoria Harbors and approaches, Vancouver Island.
924	55.51	Newfoundland, North and Northeast Coasts. Ste. Genevieve Bay to Orange Bay and Strait of Belle Isle.
1013	224.96	Gulf of St. Lawrence.
549 b	247.14	Japan: Inland Sea, Eastern Part, Sheet II.
446	274.18	Chile. Channels between Magellan Strait and the Gulf of Trinidad, Lower Part.
1006	61.75	Pacific Coast. United States and Mexico, San Francisco to San Blas.
70	66.32	Chart of the Antarctic Continent.
1300	60.29	Asia, Coast of Japan, from Sado Island to the Gulf of Tokyo, including Tsugaru Strait.
1477	55.41	Lakes Erie and Ontario (and South part of Lake Huron).
1301	100.46	Coast of Japan, from Gulf of Tokyo to Bungo Channel.
394	97.78	Central America. Serrana Bank to Chinchorro Bank, and the Coast of Honduras.
661 b	85.57	Newfoundland, South Coast. La Poile Bay.
1291	541.39	Japan. Honshu Island, Gulf of Tokyo.
1101	413.83	Newfoundland, North and Northeast Coast. Orange Bay to Cape Bonavista.
931	50.46	Nicaragua, West Coast. Ocos River to San Juan del Sur.
527	57.10	North Pacific Ocean, Sheet II.
1,377	29.77	West Indies; The Bahamas; Island of New Providence.
563	40.42	Concepcion Bay, with St. Vincente and Coliumo Bays.
855 a	31.35	Indian Ocean, Southern Portion, Western Sheet.
454	423.47	South Extreme of America: Sheet II, Western Part.
941	517.11	North America, Atlantic Coast of the United States, Halifax to New York.
1,253	53.64	South America, West Coast: Harbors on the Coast of Chile.
1,464	16.39	Canada, Ontario; Lake Huron; Clapperton Channel.
1,120	83.63	North America, East Coast of Central America, Gulf of Honduras and Approaches.
270	31.80	Cay Confites Anchorage and Cay Frances Anchorage.
447 a	37.10	Channels between Gulfs of Trinidad and Penas, Upper Part.
447	111.32	Channels between Gulfs of Trinidad and Penas, Lower Sheet.
Total, 42 charts.	5,732.60	

PLATE MAKING.

Of the engraving plates for the new charts that were begun during the fiscal year, 25 were manufactured in the office from the rough copper bought from the rolling mill, and from the condemned chart plates upon which the engraving had become obsolete, and 40 were purchased in a finished state. Six engraved chart plates were withdrawn from issue, and two that were withdrawn from issue in 1885, on account of the extensive changes that were rendered necessary by the British, German, and Chilean surveys then and since in progress, have been reconstructed and again issued. The number of copper and steel chart plates available for printing charts for issue was 881 at the end of the fiscal year ending June 30, 1896, and at the close of this year, June 30, 1897, was 939.

DIVISION OF CHART ISSUE AND SUPPLY.

The following report exhibits the receipts, expenditures, corrections, etc., of charts in the division of chart issue and supply for the fiscal year ending June 30, 1897:

HYDROGRAPHIC OFFICE CHARTS.

Received from—	
Division of chart construction	32,338
Division of chart construction (lithographic)	3,370
L. Prang & Co. (lithographic)	10,000
Total	45,708
Issued to—	
United States vessels	6,874
Agents, for sale	12,982
Archives	344
Official use	1,907
Branch hydrographic offices	5,488
Home correspondents	910
Foreign correspondents	369
Miscellaneous	1,063
Total	29,937
Charts published	63
Charts canceled	20
Copies of charts condemned	2,171
Copies of canceled charts condemned	3,103
Standards corrected from notices	605
Charts corrected from notices	28,141
Charts corrected from other sources	7,739
Hydrographic Office charts on hand June 30, 1897	72,997

There are 1,051 charts on issue, of which 912 are plate and 139 lithographs.

COAST SURVEY CHARTS.

Received from United States Coast and Geodetic Survey	13,557
Issued to—	
United States vessels	8,066
Archives	216
Official use	1,363
Branch hydrographic offices	2,026
Miscellaneous	43
Total	11,714
Standards corrected from notices	1,003
Standards corrected from other sources	95
Charts corrected from notices	6,779
Charts corrected from other sources	800
Copies of charts condemned	1,315
Coast Survey charts on hand June 30, 1897	3,418

BRITISH ADMIRALTY SECTION.

British Admiralty charts received from—	
J. D. Potter	4,921
United States vessels (returned outfits)	823
B. F. Stevens (sent to United States vessels)	806
Admiralty office (complimentary charts)	201
Total	6,751
British Admiralty charts issued to—	
United States vessels (from this office)	6,603
United States vessels (through B. F. Stevens)	806
Miscellaneous	350
Total	7,759
British Admiralty charts on hand July 1, 1896	13,164
British Admiralty charts received during the fiscal year	6,751
Total	19,915
British Admiralty charts issued during the fiscal year	7,759
British Admiralty charts condemned	984
Total	8,743
British Admiralty charts on hand July 1, 1897	11,172
Charts canceled	52
Charts placed on issue	60
Charts issued to United States vessels	2,132
Standards corrected from Notices to Mariners	805
Copies corrected from Notices to Mariners	4,278
Copies corrected from other sources	4,624

Twelve vessels were supplied with complete outfits; 5 vessels were supplied with special outfits; two outfits were transferred from the branch hydrographic office at San Francisco to United States vessels and new outfits were sent to replace them.

Of the British Admiralty charts canceled, 8 were charts not on issue and were canceled by Hydrographic Office charts; 6 were dropped by the British Admiralty; 18 were cancelled by Hydrographic Office charts, and 20 were canceled by new editions of the same numbers.

Of the British Admiralty charts received, 39 were entirely new; 20 were new editions, and 1 was a reissue.

DIVISION OF SAILING DIRECTIONS.

ARCHIVES.

During the past year there have been received, indexed, and catalogued, and placed in the archives on the shelves for reference, 597 documents and 699 books and pamphlets.

Many charts have been received. registered, delivered on requisition, and rearranged; 4,840 copies of charts affected by Notices to Mariners have had reference marks made on them; 20 sets of index charts and 28 catalogues have been compared and kept corrected to date.

For various reasons and purposes, about 14,890 charts were handled during the year and 90 charts, tracings, and diagrams compiled and drawn.

Summary of new and corrected charts received and of old ones condemned by cancellation.

	Received.	Condemned.
British Admiralty	531	463
Canadian	7	
Chilean	11	
Danish	1	
Dutch	19	2
French	3	
Geological Survey	32	3
German	18	3
Italian	15	1
Japanese	117	4
Mexican	4	
Miscellaneous	30	
Norwegian	5	1
Russian	45	5
Spanish	15	
Swedish	20	
United States Coast and Geodetic Survey	216	197
United States Hydrographic Office	344	17
United States Engineers	41	40
United States Fish Commission	1	
War Department	2	
Total since June 30, 1896	1,477	736

One thousand one hundred and ninety-six announcements of importance to navigation were published in the usual form of Notices to Mariners, which were issued on Saturday of each week, and the circulation of which, together with the extracts, amounted to 789,200.

The foreign Notices to Mariners and reports received have been translated and the more important information derived therefrom republished, as usual. A large amount of original matter from the reports received from the United States vessels of war, United States consuls, and our correspondents in the merchant marine of various nationalities, has also been published.

The index to the Notices to Mariners for 1896 was received from the printer January 7, 1897, and issued with the second notice of the year.

One hundred and fifty-one announcements of importance to navigation were published in the usual form of Notices to Mariners for the Great Lakes. The notices were issued on the 15th of each month, and their circulation amounted to 38,350. The index of the Notices to Mariners for the Great Lakes of 1896 was made up for the printer and published with the last issue of 1896.

On September 1, 1896, a monograph on "The Law of Storms, with some Practical Hints to navigators on the Great Lakes," was printed, and 5,000 copies were distributed.

Two thousand copies of "The Rules of The Road for the Great Lakes and their Connecting and Tributary Waters as far East as Montreal; also the Rules and Regulations Governing the Anchorage and Movements of Vessels in St. Marys River," were printed on January 15, 1897, and distributed.

The library of the division has been rearranged, classified, numbered, and carded. It contains 2,767 books and 543 pamphlets.

The Lists of Lights of the World have been revised and kept corrected to date. New editions of Volumes I and II were published, corrected, respectively, to October 24 and November 7, 1896.

PUBLICATIONS.

New Hydrographic Office sailing directions, supplements, and other publications placed on issue during the year.

[Printed at the Government Printing Office.]

Title.	Character.	Price.
H. O. No. 64.—Gulf of Mexico and Caribbean Sea, Vol. II, third edition, 1896..	Book	$1.50
H. O. No. 30.—List of Lights of the World, Vol. I. East and West Coast of North and South America, excepting the United States, including the West India and Pacific Islands, 1896.	.....do	.25
H. O. No. 31.—List of Lights of the World, Vol. II. South and East Coasts of Asia and Africa and the East Indies, including Australia, Tasmania, and New Zealand. 1896.	.....do	.25
H. O. No. 108.—Sailing Directions for the Great Lakes and Connecting Waters. Second edition, 1896.	.....do	1.00
H. O. No. 89.—West coast of South America, comprising Magellan Strait, Terra del Fuego, and outlying islands. Second edition, 1896.	.....do	1.20
H. O. No. 112.—Illustrative Cloud Forms for the Guidance of Observers in the Classification of Clouds. 1897.	.....do	1.00
H. O. No. 9.—American Practical Navigator. 1896..........................	.....do	2.25
H. O. No. 113.—The Treatment of Marine Meteorological Data, with Special Reference to the Work of the Hydrographic Office. 1897.	Pamphlet.....	....
Supplement, to H. O. No. 99, second edition.—Sailing Directions for Nova Scotia and Bay of Fundy.	.....do	.20
Supplement to H. O. No. 84.—The West Coast of Mexico and Central America.	.....do	.10
Supplement, to H. O. No. 86, third edition.—Gulf of Mexico and Caribbean Sea, Vol. I.	.....do	.20
Supplement to H. O. No. 64.—Gulf of Mexico and Caribbean Sea, Vol. II......	.....do	.20
Supplement, to H. O. No. 88, second edition.—The East Coast of South America.	.....do	.20
Supplement, to H. O. No. 105, second edition.—The West Coast of Africa	.....do	.20

During the year the following were prepared, kept corrected to date, and were ready for the press at the close of the year:

H. O. No. 99.—Bay of Fundy, Southeast Coast of Nova Scotia, and the South and East Coasts of Cape Breton Island. Second edition.
H. O. No. 100.—Gulf and River St. Lawrence. Second edition.
Supplement to H. O. No. 108.—Sailing Directions for the Great Lakes and Connecting Waters.
List of Lights of the World, Vols. I, II, and III.

The following new publications were received and put on issue:

From the United States Coast and Geodetic Survey:
  United States Coast Pilot, Atlantic Coast, Part VIII.—Gulf of Mexico, from Key West to the Rio Grande.
  Tide Tables, 1897.
  Pacific Coast Tide Tables, 1897.
  Catalogue of Charts, Plans, and Sailing Directions.
  Notices to Mariners.
From the United States Lighthouse Board:
  List of Beacons, Buoys, and Day Marks for the Various Districts, 1896.
  Light List, Pacific Coast, 1897.
  Notices to Mariners and Bulletins.
From the Bureau of Navigation, Treasury Department:
  List of Merchant Vessels, 1896.
From the United States Nautical Almanac Office:
  Ephemeris and Nautical Almanac, 1898.
  Nautical Almanac, 1898.
From the British Admiralty (purchased):
  China Sea Directory, Vol. I. Fourth edition.
  Baltic Pilot, Part II. Third edition.
  Norway Pilot, Part I. Third edition.
  Australia Directory, Vol. I. Ninth edition.
  Light Lists, Parts I, II, and III, 1897.
  Catalogue of Charts, Plans, and Sailing Directions, 1897.
  Tide Tables, British and Irish Ports, 1897.
  Supplement, 1896, to North Sea Pilot, Part IV.
  Hydrographic Notices, Nos. 1, 3, 4, and 5 of 1897.

The following publications were withdrawn from issue, being canceled by later editions placed on issue during the year:

H. O. No. 64.—Caribbean Sea and Gulf of Mexico, Vol. II, second edition.
H. O. No. 30.—List of Lights of the World, Vol. I, 1894.
H. O. No. 31.—List of Lights of the World, Vol. II, 1894.
H. O. No. 108.—Part I, Sailing Directions for Lake Superior.
H. O. No. 108.—Part II, Sailing Directions for Lake Michigan.
H. O. No. 108.—Part III, Sailing Directions for Lake Huron.
H. O. No. 108.—Part IV, Sailing Directions for Lakes Erie and Ontario.
H. O. No. 89.—West Coast South America, first edition.
Supplement to H. O. No. 99, first edition.
Supplement to H. O. No. 86, first edition.
Supplement to H. O. No. 88, first edition.
Supplement to H. O. No. 105, first edition.
List of Beacons, Buoys, and Day Marks, 1896.
Light List, Pacific Coast of the United States, 1896.
Tide Tables, 1896.
Tide Tables, Pacific Coast of the United States, 1896.
List of Merchant Vessels, 1895.
United States Coast and Geodetic Survey Catalogue, 1896.
British Admiralty Light Lists, 1896.
Tide Tables, British and Irish Ports, 1896.
British Admiralty Catalogue, 1896.
China Sea Directory, Vol. I, third edition.
Norway Pilot, Part I, third edition.
Australia Directory, Vol. I, eighth edition.
Baltic Pilot, second edition.

During the year 398 copies of sailing directions and 64 copies of light lists have been corrected and brought up to date to supply the places of corrected copies of these publications issued to vessels and branch offices.

The following vessels were supplied with outfits of sailing directions and nautical books:

Name of vessel.	Outfit furnished.	Remarks.
Texas	North and South Atlantic	Regular outfit for cruising.
Brooklyn	do	Do.
Puritan	do	Do.
Marblehead	do	Do.
Wilmington	do	Do.
Bancroft	European	Do.
Cincinnati	do	Do.
Raleigh	do	Do.
Petrel	Asiatic	Do.
Concord	do	Do.
Vesuvius	Special North Atlantic	For cruising.
Monongahela	Special	Practice cruise, cadets.
Ericsson	do	For United States coast.
Iowa	North and South Atlantic	Regular outfit for cruising.

SUMMARY.

The following is a statement in regard to publications received and issued during the fiscal year:

Quarter.	Received.	Issued.	Condemned.
First	957	1,094	166
Second	3,014	2,049	321
Third	1,190	1,392	79
Fourth	2,664	2,368	180
Total	7,825	6,903	746

Total for the preceding fiscal year: 6,352 received, 6,236 issued.

In this summary are included the (566) British Admiralty publications purchased and received during the year, and also those (517) issued to vessels and branch offices.

DIVISION OF MARINE METEOROLOGY.

The Pilot Charts of the North Atlantic and the North Pacific oceans and the Hydrographic Bulletin continue to be highly valued by seafaring people and others, as correspondence in the office attests. To improve their character and increase their usefulness has been the constant effort of the office. The Pilot Charts are extensively used as navigating charts, having the advantage of showing at a glance the predicted dangers to navigation, the variation curves to date, etc.

The card catalogue system for keeping the record of the library, record of reports from observers, reports of wrecks, derelicts, fog, ice, and miscellaneous reports, continues to demonstrate the wisdom of its adoption.

Many requests for information, covering a wide range of subjects, received from observers and others, have been carefully considered and answered.

At the close of the fiscal year ending June 30, 1896, 1,629 observers were recorded as cooperating with the office in its meteorological work. At the close of the fiscal year ending June 30, 1897, the total number of observers was 1,847. The record for the fiscal year shows an increase of 218 in the number of observers. There were 490 new observers, 104 old observers resumed contributions; and 376 observers discontinued the same. An analysis of the classes of observers shows the following numbers:

United States men-of-war	52
United States Coast Survey vessels	5
United States revenue vessels	6
United States light-vessels	3
United States Fish Commission vessel	1
Foreign government vessels	11
Land stations, islands, etc	22
Merchant vessels	1,747

The Pilot Chart of the North Atlantic Ocean has been issued regularly for each month of the fiscal year. The following list exhibits the subjects of interest to mariners upon which articles have appeared or supplements have been issued, as additions to the North Atlantic Pilot Chart, during the fiscal year:

July, 1896.—Subchart showing "Locations of fishing fleets, July and August, 1896;" "Transatlantic steamship routes;" "Late ice reports."

August, 1896.—"Winds of the South Atlantic, adjacent to the coast of Brazil," illustrated by subcharts; "Late ice reports." On the reverse side: "Recent accessions to our knowledge of ocean currents obtained through floating bottles," illustrated by a chart showing the tracks of bottles and a table giving the history of the bottle papers recovered.

September, 1896.—An article on "The sudden squalls of March 26 on the North Atlantic," with subchart illustrating the same.

October, 1896.—"Review of cyclone, September 5-10, 1896," with illustrative subcharts. Barogram, for September 6-7, S. S. *Francois Arago*. On the reverse side: "A graphical method for navigators," with "Graphical solution of spherical triangles," by Commander C. D. Sigsbee, U. S. N.

November, 1896.—"Charts and review of weather conditions off the American coast, October 10-13, 1896." On the reverse side: "The chronology and geographical distribution of icebergs in the Southern and Antarctic oceans," with illustrative subcharts, by W. T. Gray, M. S.

December, 1896.—"A winter anticyclone on the North Atlantic," with subchart.

January, 1897.—"The route from the east coast of Africa to Australia" (from Annalen der Hydrographie, September, 1891).

February, 1897.—"Ice on the Grand Banks during the month of February," illustrated by a subchart.

March, 1897.—"Currents in the Strait of Belle Isle," illustrated by a subchart.

April, 1897.—"The passage of the Strait of Le Maire."

May, 1897.—"The North Atlantic gales of February 6, 1897," with illustrative subchart.

June, 1897.—"International system of cloud nomenclature."

The Pilot Chart of the North Pacific Ocean has been issued regularly for each month of the fiscal year. The following list exhibits the subjects of interest to mariners upon which articles have appeared or supplements have been issued, as additions to the North Pacific Pilot Chart, during the fiscal year:

July, 1896.—"Wind and weather in the Gulf of California," with illustrative subchart.

August, 1896.—"The sailing routes from San Francisco to the equator," with illustrative subchart.

September, 1896.—"The typhoon season in east Asiatic waters," with illustrative diagrams.

October, 1896.—"Lights on the west coast of the Republic of Mexico," with descriptive table; "Shoal reported in the South Atlantic Ocean," latitude 18° 19′ S., longitude 38° 10′ W., Capt. Albert Crowe, British ship *Muskoka;* "Passages of sailing vessels around Cape Horn," with descriptive table. On the reverse side: "A graphical method for navigators," and "Graphical solution of spherical triangles," by Commander C. D. Sigsbee, U. S. N.

November, 1896.—"The typhoon of July 24, 1895," with illustrative subchart. On the reverse side: "The chronology and geographical distribution of icebergs in the Southern and Antarctic oceans," by W. T. Gray, M. S.

December, 1896.—"December weather in the Pacific east of Japan."

January, 1897.—"The route from the east coast of Africa to Australia." (From Annalen der Hydrographie, September, 1891.)

February, 1897.—"From the United States ports to the equator, en route to Australia."

March, 1897.—"From Australia to the west coast of the United States."

April, 1897.—"The passage of the Strait of Le Maire."

May, 1897.—"From Australia to the west coast of the United States."

June, 1897.—"The international system of cloud nomenclature."

The daily synoptic charts for the North Atlantic and the North Pacific oceans, besides furnishing data for the Pilot Charts, are particularly valuable in formulating data in convenient form for answering inquiries as to weather conditions, at any time, in any part of the oceans covered by the Pilot Charts, and for solving storm problems that often perplex the observers that send in reports to this office.

The Hydrographic Bulletin has been issued each week during the fiscal year, the last serial number being 409. The edition is 2,325, an increase of 75 since the commencement of the fiscal year.

BRANCH OFFICES.

The reports from the branch offices show their great utility. The last session of Congress, in sundry civil act June 4, 1897, authorized the establishment, in the fiscal year of 1898, of three new branch hydrographic offices, viz, at Duluth, Minn.; Sault Ste. Marie, Mich.; and Buffalo, N. Y.

Branch offices at those ports will undoubtedly be advantageously situated for augmenting the helpful work of the Hydrographic Office in the interest of vessel owners and the navigators of the Great Lakes.

Principal work done by the branch hydrographic offices for the fiscal year ending June 30, 1897.

	Boston.	New York.	Philadelphia.	Baltimore.	Norfolk.	Savannah.	New Orleans.
Abstract logs forwarded	....	205	35	....	....	....	2
Barometers compared	1,347	12,791	814	736	498	122	335
Bulletins distributed	12,794	6,044	12,863	7,835	7,742	6,094	5,346
Charts corrected	....	3,486	1,099	....	1,923	1,795	23
Chronometers compared	....	8	19	594	786	....	885
Current reports	....	6,426	1,143	236	....	....	....
Coast Survey Notices to Mariners distributed	624	....	1,539	49,604	75,059	20,160	960
Day marks distributed	2,755	125	433	392	648	641	960
Form 105 forwarded (sets)	808	2,903	670	668	173	119	509
Form 105b forwarded (sets)	131	234	34	30	13	20	11
Form 105 distributed (sets)	1,426	4,939	1,493	1,394	1,127	607	1,414
Form 105b distributed (sets)	36	466	396	226	440	181	234
Ice reports	421	343	240	207	18	5	....
Letters sent	1,460	5,387	1,227	1,417	625	810	2,185
Light lists distributed	694	167	91	216	281	173	202
Mascart cablegrams	438	1,253	973	....	....	....	....
Miscellaneous reports forwarded	577	1,896	477	46	64	30	11
Notices to Mariners distributed	169,846	520,533	345,013	59,795	88,277	74,990	154,612
Notices to Mariners, Great Lakes, distributed	....	....	....	....	....	....	....
Oil reports	....	18	4	7	....	1	....
Pilot Charts distributed:							
North Atlantic	4,226	11,490	3,584	2,546	2,346	1,178	2,270
North Pacific	40	236	279	115	112	21	17
Great Lakes	....	....	....	....	....	....	....
Pamphlets distributed	57	1,648	45	122	....	1,785	159
Storm reports	512	634	289	701	45	11	10
Supplements to Pilot Charts distributed	....	72	....	93	....	90	103
Trade wind reports	246	361	6	....	....	91	....
Vessels visited	1,449	1,961	885	1,329	751	514	463
Visits received	2,554	6,241	3,209	....	2,074	1,355	1,869
Wreck reports	231	218	473	101	27	94	6

	San Francisco.	Portland.	Port Townsend.	Cleveland.	Chicago.	Total.
Abstract logs forwarded	32	....	2	....	....	276
Barometers compared	982	17	165	102	44	17,953
Bulletins distributed	....	....	2	8,279	1,060	68,059
Charts corrected	....	....	8,740	677	383	18,126
Chronometers compared	39	....	618	....	5	2,954
Current reports	14	....	1,417	....	....	9,236
Coast Survey Notices to Mariners distributed	1,800	87	7,943	....	....	157,726
Day marks distributed	56	62	28	219	....	6,296
Form 105 forwarded (sets)	1,290	18	875	646	28	8,198
Form 105b forwarded (sets)	22	....	12	13	....	520
Form 105 distributed (sets)	5,397	467	1,309	988	209	20,770
Form 105b distributed (sets)	990	183	165	55	22	3,394
Ice reports	1	....	4	....	....	1,239
Letters sent	1,251	169	1,422	1,911	1,202	19,066
Light lists distributed	98	59	52	127	91	2,251
Mascart cablegrams	....	....	....	....	....	2,664
Miscellaneous reports forwarded	160	5	70	160	137	3,633
Notices to Mariners distributed	47,137	8,997	88,652	1,109	....	1,558,961
Notices to Mariners, Great Lakes, distributed	....	....	....	21,144	9,730	30,874
Oil reports	3	....	3	....	....	36
Pilot Charts distributed:						
North Atlantic	649	22	205	586	862	29,959
North Pacific	5,725	923	2,147	40	274	9,929
Great Lakes	....	....	....	121	280	401
Pamphlets distributed	373	72	177	2,516	3,024	9,978
Storm reports	113	1	70	....	13	2,399
Supplements to Pilot Charts distributed	....	....	12	....	....	370
Trade wind reports	98	152	5	....	....	959
Vessels visited	2,170	50	84	116	....	9,772
Visits received	7,529	202	1,002	1,714	....	27,749
Wreck reports	21	7	23	7	1	1,209

Very respectfully,

J. E. CRAIG,
Commander, United States Navy, Hydrographer.

The CHIEF OF THE BUREAU OF NAVIGATION,
Navy Department, Washington, D. C.

E.

MA API PRIATIONS REQUIRED FOR THE SERVICE OF THE FISCAL YEAR U 30, BY THE BUREAU OF NAVIGATION, NAVY DEPARTMENT.

FOR THE SUPPORT OF THE BUREAU OF NAVIGATION.

Salaries, Bureau of Navigation.

One chief clerk (appropriated)	$1,800.00
Two clerks of class 4 (increase of $200 submitted for one clerk of class 3)	3,600.00
Two clerks of class 3 (appropriated)	3,200.00
Three clerks of class 2 (appropriated)	4,200.00
Five clerks of class 1 (appropriated)	6,000.00
Five clerks, at $1,000 each (appropriated)	5,000.00
Three copyists, at $900 each	2,700.00
One copyist	720.00
One assistant messenger (appropriated)	720.00
Three laborers, at $660 each (appropriated)	1,980.00
Total	29,920.00

I.—*Salaries, Hydrographic Office.*

Two clerks of class 2 (appropriated)	$2,800.00
One clerk of class 1 (appropriated)	1,200.00
One assistant messenger (appropriated)	720.00
One watchman (appropriated)	720.00
Draftsmen, engravers, assistants, nautical experts, computers, custodian of archives, copyists, copperplate printers, apprentices, and laborers in the Hydrographic Office	40,000.00
Total	45,440.00

II.—*Contingent and miscellaneous expenses, Hydrographic Office.*

Purchase of furniture and stationery; copperplates, steel plates, chart paper; electrotyping copperplates; cleaning copperplates; tools, instruments, and materials for drawing, engraving, and printing; materials for and mounting charts; data for charts and sailing directions; reduction of charts by photography; photolithographing charts for immediate use; transfer of photolithographic and other charts to copper; care and repairs to printing presses, furniture, instruments, and tools; extra drawing and engraving; translating from foreign languages; expert marine, metereological, and other work in the preparation of the Pilot Chart and supplements, and the printing and mailing of the same; and purchase of, compiling, and arranging data for charts and sailing directions and other nautical publications; works and periodicals relating to hydrography, marine metereology, navigation, and surveying	30,000.00
Rent of building and rooms for printing presses, draftsmen, and engravers; storage of copper plates and materials used in the construction and printing of charts; repairs and heating of the same, and for gas, water, and telephone rates	1,500.00
Rent of increased space for the purposes set forth in the preceding item, and for repairing, heating, and lighting the same (submitted)	600.00
Contingent expenses of branch offices at Boston, New York, Philadelphia, Baltimore, Norfolk, Savannah, New Orleans, San Francisco, Portland (Oreg.), Portland (Me.), Chicago, Cleveland, Port Townsend, Buffalo, Duluth, and Sault Ste. Marie, including furniture, fuel, lights, rent and care of offices, car fare and ferriage in visiting merchant vessels, freight and express charges, telegrams, and other necessary expenses incurred in collecting the latest information of value to the maritime community, and for other purposes for which the offices were established	30,000.00

For a monthly pilot chart of the North Pacific Ocean, showing graphically the matters of value and interest to the maritime community of the Pacific Coast, and particularly the directions and forces of the winds to be expected during the month succeeding the date of issue; the set and strength of the currents; the feeding grounds of whales and seals; the regions of storm, fog, and ice; the positions of derelicts and floating obstructions to navigation; and the best route to be followed by steam and by sail; including the expenses of communicating and circulating information; lithographing and engraving; the purchase of materials for and printing and mailing the charts; the employment of three nautical experts, at $1,600 each, and two tabulators and copyists, at $720 each (appropriated) $10,

For drawing and engraving on copper plates the survey of Pearl Harbor, Hawaiian Islands, authorized under the sundry civil act of June 4, 1897, for completing a series of charts of the Hawaiian Islands, for the navigation of vessels of the Navy, and for the benefit of mariners generally; from data resulting from the Hawaiian Government survey, which have been made available for this purpose by the Hawaiian Republic; and for the construction of a series of charts of the coasts and waters between the State of Washington and the Territory of Alaska, including the reduction of the accumulated data relating to the currents and meteorology of the adjacent ocean (submitted) 12,

For the employment of one naval expert, to be a retired naval officer, in the branch hydrographic office at New York (submitted) 1,

FOR THE NAVAL SERVICE.

I.—*Gunnery exercises.*

Prizes for excellence in gunnery exercises and target practice; diagrams and reports of target practice; establishment and maintenance of targets and ranges, and for transporting to and from ranges (appropriated) 6,

II.—*Ocean and lake surveys.*

For ocean and lake surveys; the publication and care of the results thereof; the purchase of nautical books, charts, and sailing directions, and freight and express charges on same; preparing and engraving on copper plates the surveys of the Mexican coast, and the publication of a series of charts of the coast of Central and South America (appropriated) 14,

III.—*Outfits for naval apprentices.*

For bounties for outfits of 750 naval apprentices, at $45 each (appropriated) 33,

IV.—*Recruiting, transportation, and contingent.*

For expenses of recruiting for the naval service, rent of rendezvous and expenses of maintaining the same; advertising for men and boys and all other expenses attending the recruiting for the naval service, and for the transportation of enlisted men and boys at home and abroad; for heating apparatus for receiving and training ships and extra expenses thereof; for freight, telegraphing on public business, postage on letters sent abroad, ferriage, ice, apprehension of deserters and stragglers, continuous-service certificates, discharges, good-conduct badges, and medals for boys; schoolbooks for training ships, packing boxes and materials, and other contingent expenses and emergencies arising under cognizance of the Bureau of Navigation (appropriated)............... 55,

(NOTE.—An increase of $10,000 is submitted to allow for the transportation of recruits from the West.)

V.—*Naval Station, Newport, R. I.*

For maintenance of office of commandant, fuel, stationery, books, furniture, freight, and other contingent expenses (appropriated)........... 1,

VI.—*United States naval training station, Coasters Harbor Island, Rhode Island, (for apprentices).*

For dredging channels; repairs to main causeway, roads, and grounds; extending sea wall, and the employment of such labor as may be necessary for the proper care and preservation of the same; for repairs to wharf and sea wall; for repairs and improvements to buildings; heating, lighting, and furniture for the same; books and stationery, freight, and other contingent expenses; purchase of food and maintenance of live stock and mail wagon and attendance on same, and purchase of fresh water (appropriated)	$30,000.00
For barracks, mess hall, wash rooms, etc. (submitted)	125,000.00
Total	155,000.00

VII.—*Naval War College and Torpedo School.*

For maintenance of the Naval War College and Torpedo School on Coasters Harbor Island and care of grounds for same, including one draftsman, at $1,200 per year (appropriated)	9,200.00
To continue strengthening of walls already begun and to build party walls through building (submitted)	10,000.00
Total	19,200.00

VIII.—*United States Naval Academy, pay of professors and others.*

For one professor of mathematics, one of chemistry, one of physics, and one of English, at $2,500 each (appropriated)	10,000.00
Five professors, namely, one of French and Spanish, one of English, two of French, and one of drawing, at $2,200 each (appropriated)	11,000.00
One assistant professor of French (appropriated)	1,800.00
One swordmaster (appropriated)	1,500.00
Two assistant swordmasters (appropriated)	2,000.00
One instructor in gymnastics (appropriated)	1,200.00
One assistant librarian (appropriated)	1,400.00
One secretary to the Naval Academy (appropriated)	1,800.00
Two clerks to the Superintendent (appropriated)	2,400.00
One clerk to the commandant of cadets (appropriated)	1,200.00
One clerk to the paymaster (appropriated)	1,200.00
One dentist (appropriated)	1,600.00
One baker (appropriated)	600.00
One mechanic in the department of physics (appropriated)	730.00
One cook (appropriated)	325.50
One messenger to the Superintendent (appropriated)	600.00
One armorer (appropriated)	649.50
One chief gunner's mate (appropriated)	529.50
One quarter gunner (appropriated)	469.50
One coxswain (appropriated)	469.50
One seaman in department of seamanship (appropriated)	397.50
One attendant in department of astronomy and one in the department of physics, at $300 each (appropriated)	600.00
Six attendants in recitation rooms, library, store, chapel, and offices, at $300 each (appropriated)	1,800.00
One bandmaster (appropriated)	528.00
Twenty-one first-class musicians (appropriated)	7,308.00
Seven second-class musicians, at $300 each (appropriated)	2,100.00
Services of organist at chapel (appropriated)	300.00
Total	54,507.00

Pay of watchmen, mechanics, and others.

Captain of watch and weigher, at $2.50 per diem (appropriated)	912.50
Four watchmen, at $2 per diem each (appropriated)	2,920.00
Foreman in gas and steam-heating works of the academy, at $5 per diem (appropriated)	1,825.00
Labor at gas works and steam buildings; for masons, carpenters, and other mechanics and laborers; and for care of buildings, grounds, wharves, and boats (appropriated)	37,864.95
One attendant in purifying house of gas house (appropriated)	547.50
	44,069.95

Pay of steam employees.

Pay of mechanics and others in department of steam engineering (appropriated)	$7,824.50

Special course.

For special course of study and training of naval cadets, as authorized by act of Congress approved August 5, 1882 (appropriated)	3,000.00

Repairs, Naval Academy.

Necessary repairs of public buildings, pavements, wharves, and walls inclosing the grounds of the Naval Academy; improvements, repairs, furniture, and fixtures (appropriated)	21,000.00
New fire and flushing system and other sanitary purposes (submitted)[1]	15,750.00
Relaying brick sidewalks adjacent to the Naval Academy walls in streets of Annapolis (submitted)[2]	3,500.00
Repaving Maryland avenue, within the Naval Academy (submitted)[3]	4,000.00
Relaying sidewalk from Maryland avenue to cadet quarters (submitted)[4]	1,282.00
Repairing Santee's wharf (submitted)[5]	4,000.00
Necessary dredging and improvement of north water front (submitted)[6]	10,000.00
	59,532.00

Heating and lighting, Naval Academy.

Fuel and for heating and lighting the Academy and school ships (appropriated)	20,000.00

Contingent, Naval Academy.

Purchase of books for the library (to be purchased in open market on the written order of the Superintendent) (appropriated)	2,000.00
Stationery, blank books, models, maps, and text books for the use of instructors (appropriated)	2,000.00
Expenses of the Board of Visitors of the Naval Academy; being mileage and $5 per diem for each member for expenses during actual attendance at the Academy, "and for supplying necessary outfit for the Board House" (appropriated)	3,000.00
Purchase of chemicals, apparatus, and instruments in the department of physics and for repairs of the same (appropriated)	2,000.00
Purchase of gas and steam machinery; steam pipes and fittings; rent of buildings for the use of the Academy; freight, cartage, water, music, musical and astronomical instruments, uniforms for the bandsmen, telegraphing, feed and maintenance of teams, current expenses and repairs of all kinds, and for incidental labor and expenses not applicable to any other appropriation (appropriated)	32,000.00
Outfit for cadets' laundry, to be immediately available upon the approval of the act (submitted)	1,745.00
Stores in the department of steam engineering (appropriated)	800.00
Materials for repairs in steam machinery (appropriated)	1,000.00
Contingencies for the Superintendent of the Naval Academy, to be expended in his discretion (appropriated)	1,000.00
One portrait of the fifteenth Superintendent of Naval Academy act June 10, 1896 (appropriated)	100.00
Total	45,645.00

---

[1] The present system is insufficient for the efficient protection of the Naval Academy as it now exists and as it will be in the future. The larger pump and mains estimated for will suffice for many years.

[2] Rendered necessary by the paving of the streets authorized by acts approved July 26, 1894, and June 10, 1896. The sidewalks are now either unpaved or dilapidated.

[3] A portion of this roadbed is properly paved; the balance is a discredit to the Academy.

[4] The old brick sidewalk is worn out from length of service.

[5] The wharf needs replanking; is worn out.

[6] Necessary to remove shoals which prevent access to the water front by vessels of moderate draft; the excavations can be utilized in filling within the east front bulkhead.

Buildings and grounds.

Quarters for four officers and instructors—two double houses (submitted)[1]	$30,000.00
Quarters and mess hall for bachelor officers (submitted)[2]	50,000.00
Extension of the grounds, building sea wall, necessary dredging, piling, preparing building plans, etc., in accordance with the report of the Commission dated January 16, 1896, in obedience to the Department's order of July 5, 1895, looking to the reestablishment of the Naval Academy (submitted)	350,000.00
Total	430,000.00

RECAPITULATION.

NAVAL ACADEMY.

Pay of professors and others	54,507.00
Pay of watchmen, mechanics, and others	44,069.95
Pay of steam employees	7,824.50
Special course	3,000.00
Repairs	59,532.00
Heating and lighting	20,000.00
Contingent	45,645.00
Buildings and grounds	430,000.00
Total	664,578.45

FOR THE SUPPORT OF THE BUREAU OF NAVIGATION.

A. I.	Salaries, Bureau of Navigation	29,920.00
B. I.	Salaries, Hydrographic Office	45,440.00
B. II.	Contingent and miscellaneous, Hydrographic Office	85,100.00
	Total	160,460.00

FOR THE NAVAL SERVICE.

I.	Gunnery exercise	6,000.00
II.	Ocean and lake survey	14,000.00
III.	Outfits for naval apprentices	33,750.00
IV.	Recruiting, transportation, and contingent	55,000.00
V.	Naval station, Newport, R. I	1,000.00
VI.	Naval training station, Coasters Harbor Island	155,000.00
VII.	Naval War College and Torpedo School	19,200.00
VIII.	Naval Academy	664,578.45
	Total	948,528.45

NOTE.—The foregoing are the original estimates submitted by the Bureau; they do not include the amounts that would be necessary for the increased establishment recommended in the body of the report, but are made for the current establishment.

---

[1] To take the place of four houses known as Buchanan Row, built in the early part of the century, but now dilapidated and not worth repairing: should be removed.

[2] For suitable quarters for the bachelor officers and instructors now living in the old buildings known as "Stribling row," which are at the point of falling down and should be vacated at the earliest time possible.

MEMORANDUM FOR THE HONORABLE SECRETARY OF THE NAVY.

WASHINGTON, D. C., *September 13, 1897.*

The stories of the gold that is to be found in Alaska, on the Yukon River, sound more like fiction than fact; but nevertheless they have caused an unprecedented rush to that country, which rush is daily increasing.

A most serious condition of affairs is threatened. The miners have a most excellent unwritten law, based on natural justice, that they recognize among themselves, but not 30 per cent of the people now in that country, or who will be there in the early spring, are miners. Many classes are represented. The desperate characters from cities and country, especially from the Pacific Coast, who recognize no law not backed up by force, form a considerable portion of the army of gold seekers. Many others, now intelligent and law-abiding citizens, have reached or are en route to this new country with the brightest hopes and most sanguine expectations, but they go without experience, and consequently without food or outfit. The severity of the climate and the hardships to be encountered are unknown to them. The little food with which they have provided themselves, their sense of humanity, not yet entirely stunted, will cause them to share with their destitute companions. Hope will supply the vitality necessary to withstand the rigors of the idle season, but in the spring, when the dreams of the large majority remain unrealized and prospects appear dark, the thought of ultimate failure takes possession of them and they become the most desperate of the desperate class. The successful minority will be preyed upon by the unsuccessful majority.

The present rush is to the Klondike, but all that region has already been taken up. The Klondike is in British territory, but gold has been reported all along the Yukon. Men who had good results on the claims on the Yukon previous to the tales about the richness of the Klondike country have abandoned their claims to join the rush into the new land. But disappointment in the Klondike will cause a large number of them to return, and then will begin the trouble and disputes over the extent and possession of their claims.

The need of a governing force is apparent. The English have mounted policemen, as they are called, on that portion of the river in their territory. These policemen are men from the regular force of Canada, and are well versed in their work and especially adapted for it. They have boats on the river and move about, up and down, and preserve order. But any desperate character can jump across the line into American territory, and we have no force to arrest them. The Canadian force can not cross the line after them, so we will have thousands of lawless characters turned loose on our territory, and with this condition existing the protection which can be afforded the boats of the numerous trading companies and their commerce, as well as the rights of individuals, will be sadly inadequate. An instance of outrageous plunis easily imagined and could be almost as easily perpetrated. pose a gang of desperate men should hold up any one of the river ers returning with its load of hard-earned gold. They make off the treasure to their respective claims and there represent the gold he result of their own labors. By the time the unfortunate victims e made their way to the United States and made complaint it is too ate to get up the river until the following spring, by which time the plunderers have made their way out of the country with their ill-gotten wealth. This would be possible, because Alaska is unlike other Territories. In other mining localities there is a considerable population of law-abiding citizens who will uphold the law and assist in carrying out the mandates of justice, but in the new gold country the percentage of se people is very small, and those who in other localities would er assistance here remain passive, and excuse their inaction by the law of nature.

To enable the United States Government to successfully cope with this threatening evil, and to furnish adequate protection to all interests, the following plan is suggested, viz:

Establish three stations on the river, in American territory, so that one will be at either limit of the disorder and the third midway between. Then the country on the river to be patrolled by a steamer which would cover all avenues of communication. The steamer would have to be specially constructed with a view to the service she is to perform, and should be a regularly commissioned naval vessel. It should be of sufficient tonnage and with as little draft as possible. The cost of such a steamer would be about $30,000, and could be built in ninety days. The hull should be of steel and the upper works of wood. The former could be towed to Alaska, while the latter could be taken up in sections on the deck of the vessel towing. When the nearest point to the mouth of the Yukon River is reached, the steamer can be put together.

The stations on the river to be garrisoned by marines, while the steamer is manned by blue jackets. The expedition would require the following officers and men, viz:

One commanding officer, 3 commissioned line officers, 3 warrant officers, 2 doctors, 1 paymaster, 2 engineers, 3 quartermasters, 2 machinists, 4 firemen, 10 deck hands, 2 masters at arms, 1 yeoman, 1 writer, 1 ship's cook, 2 mess cooks, 1 officer's cook, 1 office steward, 6 carpenters, 1 blacksmith and boilermaker, 3 apothecaries (1 necessary for each station). The apothecaries should be capable men and able to perform the duties of doctor. They could be secured from among the graduates of medical schools.

Four marine officers, as follows: One captain and 3 lieutenants (1 in command of each station on the river); 60 marines (20 at each station).

A detailed description of the steamer and her outfit and attachments is appended, marked A.

At the stations winter quarters will have to be erected, it being impossible to winter on the steamer. Houses suitable to the climate must be built.

A detailed plan of the stations is appended, marked B.

A special outfit for the expedition is absolutely necessary, as the Government ration and clothing will not answer. A list showing the outfit required is appended, marked C.

During the winter season the patrol can be kept up on the river by the use of sledges, a detailed account of the method being appended, marked D.

The expedition to be taken north on the *Thetis*, which is available at

Mare Island. The *Thetis* to return to San Francisco in the fall, as she would be useless in the north. A detailed statement of the outfit and service of the *Thetis* is appended, marked E.

There will be considerable danger of desertion on account of the gold fever. This, in my opinion, can be overcome by rating the men and giving them double pay during their stay. This is absolutely necessary. The stories of the marvelous "finds" in the gold regions will be hard to withstand, and this, in addition to the hard work and exposure of the men, will engender a desire to desert, which must be offset by making it worth while for the sailor or marine to remain in the service. It is suggested that a medal be given for good service on the expedition.

The expedition should be in charge of a naval officer, as all communication during the summer, or working season, is by boats on the river. It is an absolute impossibility to communicate except by this means. Experience in southeast Alaska, which is much less dependent on the water for communication than this new country, shows that the work had to be done by the Navy, the Army first trying it, but giving it up quite willingly on their own account. The Army experience in trying to relieve the Greely expedition is still fresh in our minds. The duty was purely naval, but soldiers were sent, although Mr. Lincoln, then Secretary of War, said, "Why, that is water work; it strikes me the Navy should attend to it." But the expedition was sent under the Army, and with what result? Absolute failure and the loss of everything.

For the station work the marines take preference to the Army, as they are accustomed to serve with the Navy and under naval officers and have had experience in boat work, while in comparison with sailors the marine is preferable, as he is accustomed to barracks duty.

I ask for the command of the expedition. I believe myself equal to perform the arduous duty and carry out the purpose of the detail, by reason of having had many years' experience in that section in similar work. I should regard the expedition as there for the purpose of preserving the peace and enforcing the law as laid down and expounded by the properly constituted civil authorities.

The importance of the expedition can not be overestimated. It should leave San Francisco early enough to get into the Yukon River as soon as the ice will permit. This depends greatly on the severity of the coming winter and the winds in the spring. It is safe to say that the trouble from lawlessness will not be great before the river opens in the spring.

Respectfully submitted.

GEO. M. STONEY,
Lieutenant, United States Navy.

REPORT

OF THE

CHIEF OF THE BUREAU OF ORDNANCE.

NAVY DEPARTMENT, BUREAU OF ORDNANCE,
Washington, D. C., October 1, 1897.

SIR: I have the honor to submit the annual report of this Bureau, and also to transmit estimates for the fiscal year ending June 30, 1899.

ESTIMATES.

Fuel, tools, material, and labor, expenses of target practice, maintenance of proving ground, reserve supply of ammunition, machinery for gun plant, for cartridge-making machinery, capping armor-piercing shell, and conversion of 6-inch guns to rapid fire	$1, 011, 000
General repairs to buildings, magazines, etc	40, 000
Contingent, freight, etc	8, 000
Naval militia	50, 000
Reserve guns for auxiliary cruisers	500, 000
General expenses of the torpedo station	97, 500
Purchase of smokeless powder	1, 000, 000
Civil establishment at navy yards	29, 324
Reserve torpedoes and appliances	250, 000
Improvements at magazine, Fort Mifflin	45, 000
Fitting Fort Lafayette for storage of ammunition	15, 000
Machinery for ordnance building at League Island	40, 000
Toward armament of vessels authorized, armor and armament	4, 254, 800
Smokeless powder factory	93, 727
Total	7, 434, 351

On the 30th of May last, Capt. W. T. Sampson, U. S. N., who had been Chief of this Bureau for four years and five months, resigned the office.

BREECH-LOADING RIFLES.

The following table shows the present state of main battery guns whose construction has thus far been authorized, and their general assignment:

Caliber.	Number of guns completed.	Partly completed.	Forgings ordered.	Total guns authorized.	Assignment.					
					New Navy.	Old vessels.	Training ships.	Available for auxiliary.	Reserve for ships of Navy.	Total.
4-inch	144	35	30	209	126	15	19	49	0	209
5-inch	119	60	0	179	127	12	0	40	0	179
6-inch	141	54	0	195	154	0	0	41	0	195
8-inch	76	2	0	78	74	0	0	0	4	78
10-inch	26	0	0	26	22	0	0	0	4	26
12-inch	13	1	0	14	12	0	0	0	2	14
13-inch	17	17	0	34	32	0	0	0	2	34
Total	536	169	30	735	547	27	19	130	12	735

Since the date of last report 88 guns for main batteries have been completed at the Naval Gun Factory, viz: Thirty-nine 4-inch, 34 5-inch, 2 6-inch, 8 8-inch, and 5 13-inch, and 8 6-inch guns of the ordinary type have been converted into rapid-fire guns.

Forgings have been ordered for 15 4-inch guns, 12 5-inch guns, and 6 6-inch guns for auxiliary cruisers and for 13 5-inch guns for a modern battery for the *Hartford*, and 30 more sets of 4-inch for auxiliary cruisers.

No change has been made in the general system of gun construction adopted by the Bureau when the reconstruction of the Navy was begun, nor is any contemplated. The guns in service have given entire satisfaction, and up to the present time there have been no difficulties with them, no accidents due to them, no failures of any kind, either with guns or breech mechanism, nor have any of them shown signs of deterioration in the bores, except a slight case of erosion in one of the *Indiana's* 13-inch guns. In course of time this is to be expected, but it is hoped that the use of smokeless powders will be less prejudicial in this respect than those heretofore in use.

The main batteries of all vessels authorized have been completed and installed on board with the exception of those for the five uncompleted battleships, *Kearsarge*, *Kentucky*, *Alabama*, *Wisconsin*, and *Illinois*. The guns for the two former are practically completed, and work is progressing favorably on those for the last three, and they will be completed in advance of the vessels.

Fourteen 5-inch guns and mounts have been completed for the *Chicago*, to take the place of her former gun-deck battery of 8 6-inch and 2 5 inch guns of ordinary type, which will be converted later on to rapid-fire guns and reserved for auxiliary cruisers.

The guns, mounts, and outfits for the following vessels have been completed, shipped, and the guns mounted: *Iowa*, *Brooklyn*, *Puritan*, *Nashville*, *Wilmington*, *Helena*, *Annapolis*, *Marietta*, *Wheeling*, *Vicksburg*, *Newport*, *Princeton*, *Pinta*, *Fern*, and for torpedo boats *Porter*, *Ericsson*, *Rodgers*, *Winslow*, *Dupont*, *Rowan*, and *Foote*. The batteries of the *Concord* and *Petrel* have been remounted, also the *Vesuvius*.

The conversion of 6-inch guns of ordinary type into rapid-fire guns has begun; 8 have been completed, and the conversion of 19 more has been ordered and has commenced. Eighteen of these are for the *Newark* and *Atlanta*. Those for the former vessel will be remounted on their original carriages, but those for the latter will be mounted on new and improved pedestal mounts, and it is proposed to prepare 6 for the *Boston* in the same manner as for the *Atlanta*.

The breech mechanism of the *Atlanta's* two 8-inch guns is being modified in such a manner as to increase the rapidity of its manipulation. There are in service about 95 6-inch guns of ordinary type, which the Bureau recommends be converted into rapid-firing guns, as to do so will double their efficiency even if remounted on their present mounts, though to obtain their maximum degree of efficiency they should be mounted on new mounts of the rapid-fire type. The latter, however, would involve great expense and lead to serious complications in cases where a new type of mount would necessitate extensive alterations to the gun emplacements and their surroundings on board ship. Hence it is considered advisable in most cases to retain the old mounts, which conform to the vessels and their gun emplacements.

The cost of converting a 6-inch gun is about $1,000, and the time required, working eight hours a day, at the gun factory, would be from five to six months for each lot of 12 guns undertaken at the same time. The Bureau is so much impressed with the importance of this step that an item of $25,000 has been inserted in the annual estimates to carry on this work. If begun immediately, much time must elapse before the guns referred to can be converted; hence the importance of securing the necessary funds and of pushing on the work as rapidly as possible.

The Bureau urgently recommends further appropriations for guns and mounts for arming auxiliary cruisers.

In the report of the Chief of the Bureau of Ordnance for the preceding year (1896) a table is given on page 16, enumerating 21 classified mail steamers of the first and third classes, for 16 of which proposed batteries are assigned requiring 46 6-inch, 27 5-inch, and 104 4-inch guns.

In addition to this, the Board for the Inspection of Merchant Vessels has scheduled 44 vessels and recommended batteries as follows: 178 5-inch and 102 4-inch guns, making a total of 46 6-inch, 205 5-inch, and 206 4-inch guns, to meet which there will be available 41 6-inch, 40 5-inch, and 49 4-inch guns, leaving to be provided 5 6-inch, 165 5-inch, and 157 4-inch guns.

But slight provision has been made for small guns for their secondary batteries thus far.

In addition to the list of vessels given in the tables referred to, there are to-day numerous other vessels which would, in case of war, be called into service for auxiliary cruisers, and so urgent seems the necessity of providing batteries for this purpose that an item of $500,000 to continue the work has been inserted in the annual estimates.

Fifty 3-inch field guns and mounts have been made at the Naval Gun Factory and a like number by contract are nearly completed.

The Bureau has undertaken the manufacture of 100 heavy 1-pounder automatic quick-firing guns of the Maxim-Nordenfelt type. These will be made at the Naval Gun Factory.

A 6-pounder semi-automatic gun of the Maxim-Nordenfelt type has been procured and is now going through a series of firing to test its endurance and for the purpose of comparing it with the 6-pounder guns in service. Thus far it has performed very well, above 500 rounds having been fired from it.

Assignment of guns of main battery.

Object.	4-inch.	5-inch.	6-inch.	8-inch.	10-inch.	12-inch.	13-inch.	Total.
Chicago		14		4				18
Boston			6	2				8
Atlanta			6	2				8
Dolphin	2							2
Newark			12					12
Charleston			6	2				8
Yorktown			6					6
Petrel			4					4
Baltimore			6	4				10
Olympia		10		4				14
Texas			6			2		8
Maine			6		4			10
Philadelphia			12					12
San Francisco			12					12
Concord			6					6
Bennington			6					6
Monterey					2	2		4
Cincinnati		10	1					11
Raleigh		10	1					11
Montgomery		10						10
Detroit		10						10
Marblehead		10						10
Bancroft	4							4
New York	12			6				18
Puritan	6					4		10
Miantonomoh					4			4
Amphitrite	2				4			6
Monadnock	2				4			6

Assignment of guns of main battery—Continued.

Object.	4-inch.	5-inch.	6-inch.	8-inch.	10-inch.	12-inch.	13-inch.	Total.
Terror					4			4
Machias	8							8
Castine	8							8
Indiana			4	8			4	16
Massachusetts			4	8			4	16
Oregon			4	8			4	16
Columbia	8		2	1				11
Minneapolis	8		2	1				11
Iowa	6			8		4		18
Brooklyn		12		8				20
Nashville	8							8
Wilmington	8							8
Helena	8							8
Annapolis	6							6
Vicksburg	6							6
Newport	6							6
Princeton	6							6
Wheeling	6							6
Marietta	6							6
Kearsarge		14		4			4	22
Kentucky		14		4			4	22
Illinois			14				4	18
Alabama			14				4	18
Wisconsin			14				4	18
Hartford		13						13
Total for vessels of the new Navy	126	127	154	74	22	12	32	547

Summary of assignments—main battery.

Object.	4-inch.	5-inch.	6-inch.	8-inch.	10-inch.	12-inch.	13-inch.	Total.
Total number of guns, made, in process, or ordered	209	179	195	78	26	14	34	735
Number required to arm vessels of the new Navy	126	127	154	74	22	12	32	547
Number required for and assigned to old vessels, viz:								
Lancaster		12						12
Ranger	6							6
Marion	9							9
	15	12						27
Number required for and assigned to training ships, viz:								
Essex	6							6
Alliance	6							6
Pensacola	1							1
Adams	6							6
	19							19
Remaining available for auxiliary cruisers or reserve for Navy	49	40	41	4	4	2	2	142

Gun forgings.

	3 inch.	4 inch.	5 inch.	6 inch.	8 inch.	10 inch.	12 inch.	13 inch.	Total.
Required	101	209	179	195	78	26	14	34	836
Ordered	101	209	179	*a* 195	78	26	14	34	836
Delivered:									
By purchase abroad	....	....	....	....	8	3	....	....	11
By Midvale Steel Co	1	65	27	129	48	3	1	....	274
By Bethlehem Iron Co	100	99	115	57	30	23	13	24	461
Total	101	164	142	186	86	29	14	24	746
Not delivered:									
By Midvale Steel Co	....	15	....	15	....	....	....	6	36
By Bethlehem Iron Co	....	....	37	6	....	....	....	4	77
By B. Atha & Illingworth Co	....	30	....	....	....	....	....	....	....
Total	....	45	37	21	....	....	....	10	113

a Two condemned guns not included.

GUN CARRIAGES.

The following table shows the status of gun carriages, made, in progress, and required:

Caliber.	For vessels of the new Navy.	For old vessels.	For training ships.	For auxiliary cruisers.	For reserve.	Total required.	Number of sets of castings ordered.	Castings still to be ordered.	Carriages completed to date.	Carriages partly completed.
4-inch	126	15	19	49	....	209	209	....	145	21
5-inch	127	12	....	40	....	*a* 179	177	....	95	59
6 inch	154	....	....	41	....	*a* 195	185	3	130	1
8-inch	74	....	....	....	4	*a* 78	*b* 67	11	74	1
10-inch	22	....	....	....	4	*a* 26	*b* 19	7	23	....
12-inch	12	....	....	....	2	14	*b* 13	1	13	....
13-inch	32	....	....	....	2	34	*b* 21	13	13	1
Total	547	27	19	130	12	735	691	35	493	83

a Of the above, 2 5-inch, 21 6-inch, and 12 8-inch were not made of steel castings; and 4 10-inch carriages were furnished to *Terror* by Pneumatic Gun Carriage and Power Co.; also, 14 6-inch and 2 8-inch carriages are obsolete, due to change in guns.

b Includes proof mount.

A type mount of new design for the 13-inch guns of the five battleships now under construction is nearly completed and will be tested about the latter part of the year; and if it proves satisfactory in all respects, twenty in all will be manufactured for the above vessels. The mount referred to has four nickel steel recoil cylinders symmetrically placed around the gun and containing also the springs for counter recoil. The gun slides in a steel sleeve which carries the trunnions, which are balanced on knife edges, making it possible to manipulate the elevating gear by hand.

The four spring-return mounts for the *Iowa's* 12-inch guns have been completed and installed on board that vessel and have proved efficient.

A 12-inch mount is being manufactured for the proving ground to take the place of the one destroyed by the explosion of the Gathmann gun-cotton shell, and a 13-inch mount for the proving ground has been ordered.

Sixteen 8-inch mounts for the *Brooklyn* and *Iowa* have been completed and installed in those vessels, and an 8 inch type mount for the *Kearsarge* and *Kentucky* has been made and tested with very excellent results, being by far the best 8-inch mount yet produced. It has two nickel-steel recoil cylinders, carrying also the counter-recoil springs, and its elevating gear is of excellent design. Seven more mounts of this kind will be immediately taken in hand for the vessels named and one for the proving ground.

Two new 8-inch central pivot spring return mounts are being manufactured for the *Atlanta*, and the material has been ordered for two similar ones for the *Boston*, to replace the earlier carriages worked by steam and carried by those vessels.

A new type of 6-inch rapid-firing pedestal mount for 6-inch rapid-fire gun has been designed, and a type mount has been tested with satisfactory results. Forty-two mounts of this kind have been ordered for battle ships 7, 8, and 9, and others for auxiliary cruisers, and a number of them are now in process of manufacture.

Sixty-six 4-inch pedestal mounts and 13 5-inch have been completed, and 14 more of the latter are nearly completed and 45 others partly completed.

Sixty-six 6-pounder and 37 1-pounder recoil mounts have been manufactured; also 19 torpedo tube mounts.

Eight 8-inch ammunition hoists of improved design have been completed for the *Brooklyn* and 8 for the *Iowa;* also 4 12-inch hoists for the latter vessel.

The 13-inch ammunition hoists of new design for the *Kearsarge* and *Kentucky* are now being made; also 8-inch hoists with improved and novel features for the same vessels. All these hoists will have brakes working automatically attached to the lifts, to prevent them from falling in case the hoisting rope should carry away.

The *Brooklyn*, *Iowa*, *Indiana*, *Massachusetts*, *Oregon*, and other vessels are furnished with 8-inch ammunition hoists electrically controlled, which have proved satisfactory; and, in the opinion of the Bureau, electric power is most suitable for this purpose and for turning the turrets. The *Kearsarge* and *Kentucky* are to have electric power for both these purposes.

RAMMERS.

The rotary rammers driven by electric power or by hand, made for the *Iowa's* 12-inch guns, have been completed, installed in the vessel, and given satisfaction; an experimental link rammer has been made, but is rather too elaborate for service.

A new type of telescopic rammer for turret guns has been designed by Lieutenant Fenton, and a type rammer has been made and tried. It is exceedingly simple, inexpensive, and efficient, and will be installed in battle ships 5, 6, 7, 8, and 9. It can be operated by hand or by electric power.

Considerable difficulty has of late been experienced with the hydraulic rammers of earlier design on board some vessels. The Bureau has in view, and will soon put in operation, a plan to remedy the defects whereby the rammers will be made more simple and stronger than at present.

The method of handling 12-inch ammunition in the turrets of the *Texas* has given much trouble, and the fact that her guns could only be loaded in two positions has caused delay in serving them, making the intervals between fires much longer than should be the case. A scheme has been worked out by Lieutenant Haeseler, of that vessel, to overcome, in a great measure, these defects, and steps are being taken to make such changes as will enable the guns to be loaded in any position and which will facilitate the handling of the ammunition.

New and improved electric batteries and firing attachments have been provided for a large number of guns now afloat, and electric-primed ammunition for rapid-firing guns has, to a considerable extent, superseded percussion-primed, though both are, and will continue, in service.

SIGHTS.

The Bureau has continued to issue telescopic sights for all recent guns installed in turrets and for 4, 5, and 6 inch rapid-firing guns. Reports of target practice from vessels in commission show the utility of sights of this description by the increased accuracy of the practice made. An effort will be made to supply such sights for vessels having guns mounted in turrets not furnished with them. It is proposed to furnish a limited number of auxiliary sights of a simple pattern to use in case of accident to the telescopes.

RANGE FINDERS.

The range finders in service do not meet with favor from the commanding officers of vessels, who, as a rule, desire to discontinue their use. A new type with vertical base is now about to be tried, much less complex than those heretofore in use, known as the Searles-Saegmuller, after the makers, which promises to give good results.

CHANGES IN BATTERIES.

The Bureau will supply the *Marion*, *Adams*, and *Ranger* with modern batteries of 4-inch guns as soon as they can be procured. The *Pinta* will also receive a new battery of 3-pounder rapid-fire guns. The main batteries of the *Detroit*, *Montgomery*, and *Marblehead* have each been increased by the addition of two 5-inch guns, thus giving them each ten guns of this type.

TURRET MOUNTS—TERROR.

Since the date of last report the turret mounts of the *Terror* have been subjected to their final test for acceptance by the Government. The pneumatic system proved generally satisfactory, and its acceptance, so far as the operation of the turret mounts is concerned, was recommended by this Bureau, but the new spring-return mounts, with recoil cylinders independent of air or other systems, are considered superior in every respect, as the guns are always ready for immediate use, regardless of any auxiliary.

SECONDARY BATTERIES.

The following table shows the status of guns for secondary batteries:

Class.	Number required.	Number ordered.	Surplus.	Number completed.	In hand but not completed.	Yet to be ordered.
37-millimeter	41	77	36	77	0	0
47-millimeter	2	18	16	18	0	0
53-millimeter	0	1	1	1	0	0
1-pounder, light 1-pounder, heavy 1-pounder, automatic	222	264	42	164	[a] 100	0
3-pounder	42	48	6	48	0	0
6 pounder	453	391		[b] 391	0	67
3-inch field	63	100	37	50	50	0
6 millimeter Colt machine guns	102	100		50	50	2
45-caliber Gatling machine guns, long 45-caliber Gatling machine guns, short	29	66	28	66	0	0
Gatling or 1-pounder	[c] 9					
Total	963	1,065	166	865	200	69

[a] Automatic.

[b] 5 Condemned.

[c] From surplus.

SMALL-ARM AMMUNITION.

The Bureau has, in the 6-millimeter ball cartridges, substituted a bullet of 112 grains weight, having a tinned-copper jacket for the 135-grain steel-jacketed bullet at first employed. This change was made for the purpose of extending the life of the gun. With the steel-covered bullet the rifling was worn away after about 3,000 rounds, but with the copper-jacketed bullet it is practically prolonged to 10,000 rounds. With the new bullet a velocity of 2,550 feet per second is obtained, with a chamber pressure of about 43,000 pounds, and its penetration in pine boards at 5 feet from the muzzle is practically 56 inches. It easily penetrates one-half an inch of mild steel at 10 feet from the muzzle. A blank cartridge has been adopted having a paper bullet charged with black powder, the cartridges themselves being charged with nitro-powder. The requirements for these cartridges are that they must not perforate a paper target at a distance of 15 feet.

6-MILLIMETER AUTOMATIC GUN.

Fifty of these guns have been completed and delivered by the Colt's Patent Fire Arms Manufacturing Company and 50 more have been ordered. A new field mount to carry the gun and 2,000 rounds of ammunition has been designed and tested with satisfactory results. The whole outfit weighs but 350 pounds and can be handled with great facility by three or four men.

FUSES AND PRIMERS.

After many difficulties and much delay, a satisfactory adjustable time and percussion fuse for use in shrapnel has been developed, and deliveries are now being made and will enable the Bureau to put in service the new 3-inch field guns.

The introduction of smokeless powder for use in 6-pounder guns has been somewhat retarded owing to the difficulty of obtaining a primer which would insure an instantaneous ignition of the charge, there being an occasional tendency to hang fire; a new primer, containing 43 grains of black powder, with a slightly heavier case than former ones, has been tried with success and will be adopted.

8-INCH NICKEL STEEL GUN.

After several attempts, the partly assembled forgings for this gun were separated by the use of the Sellers portable furnace. The forgings are considerably distorted and galled, and have by repeated heating lost a part of their original temper and can only be used in combination with another set after re-treatment. The Bureau is not in favor of assembling guns by this process.

AMTOMOBILE TORPEDOES AND TORPEDO MATERIAL.

Torpedoes.—Since the date of last report a contract has been concluded for 50 short Whitehead torpedoes, and 9 more of the same type were subsequently ordered. Several features of the long (5 meters) torpedo were embodied in these torpedoes, and they have been designated as 3.55 meters by 45 centimeters, Mark III.

The number of torpedoes in service, lost or damaged beyond repair, on hand at yards and stations, required for ships and boats to complete

Assignment of secondary batteries—Continued.

Vessel.	6-pounder.	3-pounder.	1-pounder.	37 millimeters.	47 millimeters.	Machine guns.	Field guns.	Total.
Farragut	4							4
Davis			3					3
Fox			3					3
Morris			3					3
Talbot			1					1
Gwin			1					1
MacKenzie			1					1
McKee			1					1
Fern	1							1
Torpedo boat No. 19	4							4
Torpedo boat No. 20	4							4
Torpedo boat No. 21	4							4
Total	453	42	222	41	2	131	72	963

Some of the earlier 6-pounders are beginning to wear out in the rifling and will soon have to be replaced. The old ones can be used as saluting guns at navy-yards.

CAPPED SHELL.

The Department having acquired the right to use the Johnson patents for soft steel caps, has begun to fit them to armor-piercing shell, and all recent contracts for such shell have required them to be capped. The following table shows the shell contracts made during the year:

Projectiles.

Contractor.	Secondary battery.				Main battery.			
	1-pounder.		6-pounder.		4-inch.		5-inch.	
	Common.	Armor piercing.	Common.	Armor piercing.	Common.	Armor piercing.	Common.	Armor piercing.
Carpenter Steel Co.						2,048		2,421
Firth-Sterling Steel Co.						2,000		1,400
Midvale Steel Co.						2,000		1,400
United States Projectile Co.				25,000			10,000	
American Ordnance Co.	10,400	96,280		4,523				
American Projectile Co.				25,000				
Total	10,400	96,280		54,523		6,048	10,000	5,221

Contractor.	Main battery.									
	6-inch.		8-inch.		10-inch.		12-inch.		13-inch.	
	Common.	Armor piercing.	Common.	Armor piercing.	Common.	Armor piercing.	Common.	Armor piercing.	Common.	Armor piercing.
Carpenter Steel Co.		2,667		233		16		65		220
Firth-Sterling Steel Co.		1,784								200
Midvale Steel Co.		1,767								200
Taylor Iron and Steel Co.							150			
Total		6,218		233		16	150	65		620

SMALL ARMS.

The 10,000 6-millimeter Lee straight-pull rifles, contracted for with the Winchester Repeating Arms Company October 31, 1895, have all been delivered, and a large proportion of them have been issued to vessels in commission, with accouterments and ammunition, and in a short time all the vessels of the Navy will be equipped with them.

SMALL-ARM AMMUNITION.

The Bureau has, in the 6-millimeter ball cartridges, substituted a bullet of 112 grains weight, having a tinned-copper jacket for the 135-grain steel-jacketed bullet at first employed. This change was made for the purpose of extending the life of the gun. With the steel-covered bullet the rifling was worn away after about 3,000 rounds, but with the copper-jacketed bullet it is practically prolonged to 10,000 rounds. With the new bullet a velocity of 2,550 feet per second is obtained, with a chamber pressure of about 43,000 pounds, and its penetration in pine boards at 5 feet from the muzzle is practically 56 inches. It easily penetrates one-half an inch of mild steel at 10 feet from the muzzle. A blank cartridge has been adopted having a paper bullet charged with black powder, the cartridges themselves being charged with nitro-powder. The requirements for these cartridges are that they must not perforate a paper target at a distance of 15 feet.

6-MILLIMETER AUTOMATIC GUN.

Fifty of these guns have been completed and delivered by the Colt's Patent Fire Arms Manufacturing Company and 50 more have been ordered. A new field mount to carry the gun and 2,000 rounds of ammunition has been designed and tested with satisfactory results. The whole outfit weighs but 350 pounds and can be handled with great facility by three or four men.

FUSES AND PRIMERS.

After many difficulties and much delay, a satisfactory adjustable time and percussion fuse for use in shrapnel has been developed, and deliveries are now being made and will enable the Bureau to put in service the new 3-inch field guns.

The introduction of smokeless powder for use in 6-pounder guns has been somewhat retarded owing to the difficulty of obtaining a primer which would insure an instantaneous ignition of the charge, there being an occasional tendency to hang fire; a new primer, containing 43 grains of black powder, with a slightly heavier case than former ones, has been tried with success and will be adopted.

8-INCH NICKEL STEEL GUN.

After several attempts, the partly assembled forgings for this gun were separated by the use of the Sellers portable furnace. The forgings are considerably distorted and galled, and have by repeated heating lost a part of their original temper and can only be used in combination with another set after re-treatment. The Bureau is not in favor of assembling guns by this process.

AMTOMOBILE TORPEDOES AND TORPEDO MATERIAL.

Torpedoes.—Since the date of last report a contract has been concluded for 50 short Whitehead torpedoes, and 9 more of the same type were subsequently ordered. Several features of the long (5 meters) torpedo were embodied in these torpedoes, and they have been designated as 3.55 meters by 45 centimeters, Mark III.

The number of torpedoes in service, lost or damaged beyond repair, on hand at yards and stations, required for ships and boats to complete s, and the reserve remaining available for issue is shown in the wing table:

Torpedoes.	Howell.		Whitehead.				Totals.
	Mark I, 14.2".	Mark I, 45 cm., 18".	3.55 m. x 45 cm. Mark I.	3.55 m. x 45 cm. Mark II.	3.55 m. x 45 cm. Mark III.	5 m. x 45 cm. Mark I.	Howell and Whitehead.
Contracted for or ordered	a 50	d 1	a 100	a 50	b 50	c 200	500
In service on ships and torpedo boats	11	0	69	32	0	0	131
Lost or damaged beyond repair and not fit for issue	6	0	4	5	0	0	18
Assigned as outfits of ships and torpedo boats	3	0	20	26	0	55	122
In reserve for issue when completed	30	d 1	7	4	50	17	114

a Completed.

b Completed and accepted, having Obry gear installed.

c Sixty completed and accepted, 40 completing, 100 having Obry gear installed.

d The 45-centimeter 18-inch Howell torpedo was ordered for experiment, and will be tested at an early date, at the American Ordnance Company's range, at Tiverton, R. I. No service launching apparatus has been provided for this torpedo.

Experiments with the Obry steering device for torpedoes have demonstrated its efficiency, and it has been adopted for use in the service Whitehead torpedoes now under contract, and is being installed in them.

Torpedo No. 9, Whitehead, 3.55 meters by 45 centimeters, Mark II, was lost from the *Indiana* while at practice in New York Harbor, and was about six weeks later washed on shore at Sagg, east end of Long Island, and has been put in order for reissue.

Torpedo No. 30, Whitehead, 3.55 meters by 45 centimeters, Mark I, was lost from the *Lancaster* while at practice off La Plata, River Platte, but was afterwards found by the Argentine authorities and transferred to the *Lancaster* through the United States minister.

Torpedo No. 2, Whitehead, 3.55 meters by 45 centimeters, Mark II, lost at the torpedo station July 15, 1895, while experimenting with a new-depth mechanism, was recovered September 2, 1897, but is not fit for service use without extensive repairs.

Torpedo No. 3, Howell, 14.2 inches, Mark I, was wrecked in the tube during practice from the *Detroit* at Chefoo, China. This torpedo has been returned to torpedo station, and is damaged beyond repair.

Torpedoes turned in from vessels, as in excess of allowance, due to removal of bow or stern tubes, are counted as torpedoes on hand, being available for reissue.

The following ships and boats have been supplied with automobile torpedo outfits since last report: *Massachusetts*, *Texas*, *Porter*, *Brooklyn*, *Ericsson*, *Foote*, *Iowa*, and *Dupont;* the *Iowa* with Howell torpedoes, all others with the Whitehead. The torpedoes from the *Columbia* and *Minneapolis* were turned in when those vessels were put in reserve, and Mark II torpedoes have been assigned to them on recommissioning.

TORPEDO LAUNCHING APPARATUS.

The *Brooklyn's* lower-deck Whitehead tubes have been completed and installed, also the 18 C. P. boat tubes for torpedo boats 3 to 8, inclusive. The lower-deck tubes removed from the battle-ships *Indiana*, *Oregon*, and *Massachusetts* (one each from *Indiana* and *Oregon* and two from *Massachusetts*) are held in store for them, to be reinstalled at any time if considered advisable.

In accordance with a decision by the Board on Construction, approv by the Department, the Bureau has directed the bow and stern tubes to be removed from all ships, and this has been done except in the *Oregon* and *Olympia*, those vessels not having been available for the purpose.

Seven of the bow or stern tubes removed from ships, and two upper-deck tubes, Nos. 14 and 18, have been converted to C. P. boat tubes for torpedo boats 15 to 18, inclusive, and the U. S. S. *Standish*, the mounts being manufactured at the Washington Navy-Yard. All Howell and Whitehead tubes not in use are held in store as a reserve.

Considerable delay has resulted in the development of satisfactory long (5 meters) tubes and mounts for ships and boats. An experimental 5-meter C. P. tube and mount lately tried on the *Porter* has given excellent results, and a contract will shortly be concluded for the manufacture of 15 C. P. tubes and mounts for boats 9 to 14, inclusive, and 20 lower-deck tubes and mounts for battle ships 5, 6, 7, 8, and 9. Six additional 5-meter C. P. tubes and mounts will be required for boats 19, 20, and 21, and will be ordered in time to install when these boats are sufficiently advanced to receive same.

New details of these tubes consist in releasing the stop pin automatically by the blast of discharge, and in using no elevating gear, the tubes being at a standard depression of 3½ degrees.

Ordnance outfits of torpedo boats 9 to 18, inclusive, are being manufactured at the Naval Gun Factory. The torpedo outfits will, as usual, be furnished from the torpedo station.

AIR COMPRESSORS.

Five large compressors have been completed and four are installed in ships, two in *Brooklyn*, one in *New York*, and one in *Cincinnati*. One is still held available and is in use at torpedo station for data as to performance under severest conditions. Six other compressors have been installed in ships and boats.

Whitehead type II air compressors have been found unsatisfactory and are being replaced as fast as possible by others. Those already removed from ships are held in store as available for emergencies.

Twelve small air compressors have been contracted for to supply the *Standish*, *Detroit*, and ten torpedo boats (9 to 18 inclusive). Six have been completed and one is installed on the *Standish*. The other compressors are in satisfactory progress. Three more large compressors are required for the *Kearsarge* and *Kentucky* and will soon be ordered. The compressors for battle ships 7, 8, and 9 will be ordered in sufficient time for installation.

ACCUMULATORS AND SEPARATORS.

The fitting and assembling of air accumulators and separators has been transferred to torpedo station.

HIGH EXPLOSIVES.

Congress having appropriated, by the act of June 10, 1896, $50,000 for testing methods of firing high explosives from powder guns, and the Department having decided to test a system designed by Mr. Louis Gathmann, a tube of the dimensions required for a 13-inch gun, but bored to 12 inches and fitted with breech mechanism, was mounted on a 13-inch hydraulic mount, forming part of the outfit of the Naval Proving Ground.

The shell to be used for this purpose were specially designed by the inventor. The manufacture of the shell was undertaken in the latter part of 1896, and experiments were commenced in February, 1897, and have continued at intervals up to the present time.

The essential feature of the projectile is the use of a very thin wall, giving great space for the explosive compound it is to carry, which is accomplished by equalizing the pressure on the inner and outer surface of the shell, this being done by a movable piston in the base of the shell, which, when acted on by the powder gases, transmits to the interior walls of the projectile the same pressure as surrounds it externally, the one neutralizing the other.

The first projectiles tried had walls one-quarter of an inch thick; they were loaded with inert material, and were found to be too weak in structure, three bursting near the muzzle, and in two cases before leaving the gun. The pressures in the gun were low, not reaching 6 tons in any case. Other shells were made with walls of one-half-inch thickness, which stood a pressure of 8 tons and reached a velocity of 1,686 foot-seconds. After a number of preliminary fires to test the shell, the primer, etc., one of the new projectiles was loaded with 307 pounds of wet gun cotton, fused with a fulminate and dry gun-cotton primer inclosed within the shell in a safety chamber designed by the inventor, and the improvised gun was fired by electricity. The firing of the gun and the explosion of the shell within it were apparently simultaneous. The gun was completely wrecked by the explosion, and the station mount was injured beyond repair. No one was injured, though fragments of gun and mount were thrown more than a mile in various directions. The cause of the premature explosion has never been fully determined, and it is a question whether it was through failure of the safety device to act properly, or whether the sudden pressure, due to the charge and transmitted through the movable piston in the base of the shell, compressed the gun cotton to such a degree as to cause its explosion. Gun-cotton-loaded projectiles had been fired with fuses without accident, with pressures of about 6.5 tons, with this system, and the fuse had functioned properly in unloaded shell; that is, the fulminate was not ignited by the shock of discharge. Some further experiments have been and are yet to be made with an 8-inch muzzle-loading rifle, and recently one projectile containing 47 pounds of wet gun cotton and 8 ounces of dry, with a fulminate primer, was fired. The shell was not exploded, probably because there was not sufficient communication between the gun cotton in the fuse and the main charge.

A safety device, intended to prevent the ignition of the gun cotton if the fulminate is prematurely exploded, has worked satisfactorily in these experiments. Without wishing to discredit a system the merits or defects of which are not yet fully understood, the Bureau expresses the opinion that the use of fulminate with high explosives to be fired from high-powered guns is too dangerous and too uncertain to warrant its introduction on shipboard in its present state of development, nor would it be advisable to use guns of special design with which to fire such missiles as part of the battery of a vessel; nor has it yet been shown that large charges of gun cotton exploded simply in contact with armor plates are sufficiently destructive to shatter them.

The latest experiments with 8-inch projectiles have been made from an ordinary gun, because none other was available, but this was a departure from the original scheme, and the shells successfully fired have much thicker walls in proportion to their size than had those originally presented. Whatever the final outcome of the experiments may be, the Bureau does not favor the use of this system on board naval vessels.

Experiments to determine the effect of the explosion of a large charge of wet gun cotton were made at the proving ground as follows: Two steel plates 13 feet long by 7 feet wide and five-eighths of an inch thick were set vertically on edge on the beach, parallel to each other and securely braced, 50 feet apart. One of the first lot of shell having half-inch walls, made to illustrate the Gathmann system, was loaded with 340 pounds of wet gun cotton, was placed on the beach between the plates, 35 feet from one and 15 feet from the other, and fired electrically. A complete detonation of the gun cotton was effected, but the plates were neither injured nor displaced. The explosion was of high order and locally severe. A similar shell, similarly placed, was loaded with 220 pounds of shell powder and fired, with practically the same results as with the gun cotton.

A similar shell loaded with 307 pounds of wet gun cotton was hung against the face of a heavy armor plate standing vertically against a target structure. The plate was 16 by 7 feet and from 16½ to 9½ inches thick and weighed 28 tons. The shell was placed horizontally against the face of the plate, which had received two shots for acceptance before this experiment. The shell was fired by electricity and an explosion of the first class resulted. The damage to the plate was trifling, its face being fused and burned to a maximum depth of five-eighths of an inch in the wake of the shell as it lay before explosion.

Experiments have been made in firing armor piercing shell loaded with an explosive which have been attended with much success. Shells of 4, 6, and 10 inches caliber have been loaded with this explosive compound and fired at high velocities, passing unbroken through the plates and exploding in rear of them. This explosive is very insensitive to shock, and is fired with an ordinary service fuse. These qualities commend it greatly for such use as charging armor-piercing shell whose walls are too thick and strong to be burst by powder charges

ARMOR.

Since the date of the last annual report no further armor contracts have been made. Congress at its last session appropriated a sum of money for armor for battleships Nos. 7, 8, and 9 (requiring about 8,000 tons), but limited the price to an average of $300 per ton. In response to invitations to bid thus sent out, the only two companies in this country capable of manufacturing armor replied that they were unable to furnish armor at the price named. In consequence, no contract has yet been made for armor for battleships *Alabama*, *Illinois*, and *Wisconsin*, and the ultimate completion of these vessels will, in consequence, be greatly delayed.

Congress having directed that an Armor Factory Board, composed of competent naval officers, be ordered to prepare plans and estimates for an armor plant, the Department has taken the necessary steps to acquire the information desired.

The Bureau is of the opinion that the Government can purchase armor more cheaply than it can manufacture it, and regards the making of armor as a proper adjunct to a great commercial steel plant. Foreign practice confirms this view; and even should the Department acquire a plant of its own, the chances are that it would be at a great cost, and that it would lie idle a large part of the time and thus suffer great deterioration, and that the expense and difficulty of operating it when needed would more than offset any advantages gained by such ownership.

During the past year the last portion of the armor remaining due on the contract of March 1, 1893, consisting of one 12-inch turret for the *Iowa*, from the Bethlehem Iron Company, and the casemate shutter plates for the same vessel, from the Carnegie Steel Works, have been delivered and the contract completed.

Work on the armor for the *Kearsarge* and *Kentucky*, under the contract of June 1, 1896, has been vigorously prosecuted at both establishments, and to such good end that all the armor contracted for by the Carnegie Company, amounting to 2,975 tons, for those vessels, with the exception of the 8-inch turrets (about 300 tons), was delivered or ready for delivery within fourteen months after the date of signing the contract, and the turret armor could readily have been delivered within this period had the ship contractors furnished the required drawings. At Bethlehem, also, delay in receipt of drawings has delayed somewhat the rate of delivery, though in both cases all the armor for both ships will have been at the works of the shipbuilders before it is required for fitting to the vessels.

The following table summarizes the present condition of all the armor contracts, the only uncompleted ones being those for the *Kearsarge* and *Kentucky:*

Armor contracts.

	Carnegie Steel Co.	Bethlehem Iron Co.	Total.
	Tons.	*Tons.*	*Tons.*
Armor delivered to Oct. 1, 1896	9,063.17	10,220.03	19,283.20
Armor delivered since Oct. 1, 1896	2,416.83	538.90	2,955.73
Armor still to be delivered	[a] 565.17	[b] 2,311.10	2,876.27
Total	12,045.17	13,070.03	25,115.20

[a] The 8-inch turret armor (330 tons) is practically finished, requiring only the bending of a few of the plates and their tempering. This group, the last of the Carnegie contract, will be ready for ballistic test probably within the first ten days of October.

[b] In addition to this, there has been accepted 1,300 tons which is being set up at the contractor's works and will be shipped during the coming month. The 13-inch turret armor, comprising over 1,000 tons, has all been carbonized and will soon be ready for ballistic test.

The armor shown in the following table is required for each of the battle ships *Illinois*, *Alabama*, and *Wisconsin:*

Group No.	Name of part.	Thickness.	Number of pieces.	Approximate weight in tons.	Face-hardened.
		Inches.			
1	Barbette, forward	10	4	106.09	Yes.
1	Barbette, forward	15	7	321.12	Yes.
1	Barbette, aft	10	4	66.06	Yes.
1	Barbette, aft	15	7	199.50	Yes.
1	Bulkhead on protective deck	12	4	38.72	Yes.
	Total			731.49	
	Bolts and nuts			8.26	
2	Casemate, lower, diagonal, forward	5½	4	35	Yes.
2	Casemate, lower, diagonal, aft	5½	4	33.47	Yes.
2	Casemate, lower, midships	5½	16	222.69	Yes.
2	Belt, armor end plates, forward	4	6	71.37	Yes.
2	Casemate, upper, midships	5½	16	162	Yes.
2	6-inch gun protection, forward	6	2	26.40	Yes.
2	6-inch gun protection on upper deck	6	4	57.86	Yes.
	Total			608.79	
	Bolts and nuts			7.80	

Armor for battle ships Illinois, Alabama, and Wisconsin—Continued.

Group No.	Name of part.	Thickness.	Number of pieces.	Approximate weight in tons.	Face-hardened.
		Inches.			
3	Belt armor, 4th plates from stem	4 to 7⅜	2	32.09	Yes.
3	Belt armor, 5th plates from stem	5 5/16 to 11⅓	2	43.75	Yes.
3	Belt armor, 6th plates from stem	7⅜ to 15	2	63.88	Yes.
3	Belt armor, midships	9½ and 16½	20	552.88	Yes.
	Total			692.60	
	Bolts and nuts			7.80	
4	Turret armor, forward	14	7	164.18	Yes.
4	Turret roof, forward	3	3	26.25	No.
4	Turret-roof butt straps	2	4	1.75	No.
4	Turret armor, 36-inch sighting hoods (2)	Tapered.	2	4.51	No.
4	Turret armor, 36-inch sighting hoods, tops	2	2		
4	Turret armor, 30-inch sighting hoods	Tapered.	1	.96	No.
4	Turret armor, 30-inch sighting hoods, tops	2	1		
4	Turret armor, forward, armor shelf	2	5	9.30	No.
4	Turret armor, after	14	7	164.18	Yes.
4	Turret roof, after	3	3	26.25	No.
4	Turret-roof butt straps	2	4	1.75	No.
4	Turret armor, 36-inch sighting hoods (2)	Tapered.	2	4.51	No.
4	Turret armor, 36-inch sighting hoods, tops	2	2		
4	Turret armor, 30-inch sighting hoods	Tapered.	1	.96	No.
4	Turret armor, 30-inch sighting hoods, tops	2	1		
4	Turret armor, after, armor shelf	2	5	9.30	No.
4	Conning tower	10	2	43.70	Yes.
4	Conning-tower shield	10	1	10.06	Yes.
4	Conning-tower top	2	1	2.81	No.
4	Conning-tower shield top	2	1	.88	No.
4	Signal tower, aft	6	1	17.94	No.
4	Armor tube	7	1	15.97	No.
	Total			505.26	
	Bolts and nuts			6	
	Total armor for each ship				2,538.14
	Total bolts and nuts for each ship				29.86

The armor manufactured during the past year is of uniform and excellent quality. The high standard of face-hardened armor, the manufacture of which originated in this country, has been maintained, and the Bureau is confident that the armor manufactured in this country is equal to and probably superior to any that has yet been put afloat abroad.

The builders of battle ships Nos. 7, 8, and 9, being anxious to push forward the work on the hulls of those vessels, have each, with the Department's approval, agreed to furnish at the price fixed by Congress (viz, $300 per ton) the four plates for the diagonal armor, weighing about 30 tons for each vessel. As these plates have to be worked into the vessel, they were very necessary to enable the work on the hulls to be proceeded with.

The Bethlehem and Carnegie companies both offered to supply to the Government these plates at any price the Department might decide upon, but their offer was declined.

PROTECTIVE DECKS.

Under the requirement incorporated, at the suggestion of this Bureau, in the specifications for steel for the protective deck plates of the *Kearsarge* and *Kentucky*, that they should be tested ballistically, plates representing such steel have been tested at Indian Head and have shown satisfactory resistance.

SHIELDS FOR LIGHT GUNS.

One hundred five-eighths inch shield plates for 6-pounder guns, lered from the Bethlehem Iron Company, as the result of a long line xperiments on light plates of different thicknesses and characteristics, are being delivered, and the ballistic tests show that the service plates furnished are fully equal to the experimental plates from which they were ordered.

Some interesting experiments have been made with high manganese steel plates, which have given excellent ballistic results, and further experiments with thicker plates will be made.

NAVAL MAGAZINES.

The condition of the magazines at certain stations on shore has occupied the Bureau's attention to considerable extent. The situation at New York has of late years been one of serious embarrassment. Ellis Island having been abandoned, temporary accommodations were by the courtesy of the War Department granted at Fort Wadsworth, where for a few years, under circumstances of great inconvenience to both services, the magazine work pertaining to our principal naval station was carried on with much difficulty and expense. Improvements to the fortifications rendered it necessary that we should find other quarters, and our presence there and the large quantity of freight constantly being received and shipped became such an annoyance that we were requested to vacate the premises.

A board of naval officers was appointed to look for a suitable site for a magazine convenient to the navy-yard and near deep water, but was unable to find one, and the use of a vessel for a floating magazine was contemplated, but the latter offered so many difficulties and objections that it was determined not to adopt it except as a last resort. The Department learning that Fort Lafayette was not occupied by the Army, requested its use from the War Department for temporary naval purposes, and this request being granted, the Bureau took possession on August 1. The interior of the fort, casemates, etc., were filled with débris, and the place was in a most discouraging condition, but at a very moderate expense it was cleared out and a portion of it put in order for the reception of ammunition, and within three weeks of the date of occupancy the necessary work was being carried on with a reasonable degree of facility, but under many difficulties. Several improvements must be made to render the place fit for even temporary use, but the cost of making them will be far less than would be the rental of premises elsewhere or the fitting up and maintenance of a vessel. An appropriation of $15,000 has been inserted in the annual estimate for this purpose.

The Bureau can not too forcibly present to the Department the necessity of procuring a permanent site in the vicinity of New York for a magazine, and it is recommended that steps be taken to that end and persevered in until one is found and secured.

The naval magazine at Dover, N. J., is most useful as a place for the storage of a reserve supply of ammunition, but it does not dispense with the necessity of a magazine contiguous to the waters of New York.

Magazine at Chelsea, Mass.—The magazine building at this point is a commodious granite structure located on the banks of the Mystic River on a tract of land adjoining those of the naval and United States marine hospitals. It is easy of approach by land or water and at a convenient distance from the harbor and navy-yard. At present it is sufficiently remote from the built-up part of the city, but there is a strong probability that within the next ten years it will be regarded as objectionable and ultimately a site will have to be found elsewhere, and it would be well to take steps now to find a suitable one.

The main magazine at Chelsea requires a new roof and floor and improvements in the means of ventilation, and such repairs will be taken in hand at once. All the other buildings are comparatively small, and may be termed poor, and the grounds are in an unsatisfactory state—fences decayed and shore line a marsh. The Bureau will, as far as current appropriations permit and as far as seems judicious, improve the place, which must serve for several years to come.

At Fort Mifflin, near League Island, new buildings have been erected and the grounds improved at a cost of $50,000, and a very creditable establishment now exists at that place, but still incomplete in several respects. The grounds are not inclosed; railroad tracks and a pumping plant for fire purposes are required, also an additional building for a magazine, one for fixed ammunition and gun-cotton house, and an item has been inserted in the annual estimates for this purpose, as abundant facilities for the storage of a large quantity of ammunition are required at this station, which the Department has selected for laying up vessels.

The ammunition for the *Columbia*, *Minneapolis*, and *Miantonomoh* is now stored here, and should a battleship carrying some 400 tons of ammunition be laid up also there would be scant room to accommodate the same.

The area of land is too small, and it is proposed to request from the War Department, whose reservation adjoins the naval premises, an additional strip on each side, in order that we may expand and not have too near neighbors.

At St. Julien's Creek, near the Norfolk Navy-Yard, new magazines and other buildings have been completed and a creditable and suitable establishment has been created, and the old magazine at Craney Island will be vacated.

At Malden, Mass., the Bureau has upwards of 8,000,000 pounds of saltpeter stored, which has been there since the civil war. The premises are in fairly good condition considering their age, and as it costs but a small sum to care for them, it is proposed to let them remain. The introduction of smokeless powders renders the use of saltpeter much less necessary than formerly, and the propriety of disposing of this large quantity has been considered, but the prices offered are so small in comparison with the original cost that the Bureau is of the opinion that it is preferable to hold on to it rather than to dispose of it at a great sacrifice, especially as it is in good condition and suffers no deterioration from keeping.

NAVAL GUN FACTORY.

This important establishment is in excellent condition, and during the past year has been considerably improved as regards the character of some of the buildings, notably the foundry, which has been raised a story in height and given a new iron roof; it has been fully equipped with new cupolas and blowers, elevators, jib cranes, an electric overhead traveling crane, new air furnaces, etc., and is in first-rate condition and has abundant facilities for turning out a large quantity of work. Railroad tracks and turntables have been laid in rear to facilitate the handling of material, and the adjacent streets have been graded and put in good condition. The large building occupied by the gun-mount department has had a new roof, and the west side, formerly a two-story building for one-half its length, has been cleaned out and made to conform to the rest of the structure, given a new and solid floor and overhead crane, and the best of the old and a number of new machines have been installed, erecting plates laid, etc., and the facilities for carrying on work have been greatly enlarged.

This admirable building is now completely modernized, except a portion of its north end used as an erecting shop, which requires new galleries and an overhead crane, but the immediate necessities are not such as to demand it for another year.

The manufacture of guns is carried on with accuracy, promptness, and economy, and the value of this establishment to the Government can not be overestimated. It has set a standard of excellence in the manufacture and cost of gun making without which the Navy Department would be at a serious disadvantage.

An establishment of this kind requires from time to time additions of special and modern tools, and a moderate sum has been inserted in the annual estimates for this purpose.

It is recommended, also, that the Department should hereafter manufacture brass cases for fixed ammunition, instead of buying them. They are very expensive as now procured, and it is believed that this branch can be successfully added to the plant at the gun factory and result in a large saving of money. These cases are articles of regular consumption, and it seems advisable for the Government to control at least one source of supply, and an item has been inserted in the annual estimates for the purchase and installation of machines necessary to make cases of all sizes except for small arms. The Bureau believes that in the near future it would be advantageous to the Department to manufacture in part, at least, its own small-arm ammunition, and the Bureau will, if authorized, proceed in this direction.

Attention is called to the recommendations made in the last annual report of the superintendent of the Naval Gun Factory, renewed in the present one, that a building be erected by the Bureau of Yards and Docks for the stowage of reserve guns and mounts and increased accommodation for stowing patterns.

The gun factory is now in charge of Commander E. C. Pendleton, U. S. N., who on June 1 last relieved Commander Charles O'Neil of that duty.

The report of the superintendent is appended.

NAVAL PROVING GROUND.

The current work of proving and ranging guns, testing mounts, armor plate, powder, projectiles, etc., has fully occupied this important station, which has been in charge of Commander A. R. Couden, U.S.N., since November 12, 1896, on which date he relieved Lieut. Commander N. E. Mason, U. S. N., who was detached and ordered to sea after three years of excellent service at this place.

Improvements and repairs have been made to the traveling crane, railroad tracks, and turntables, thereby greatly facilitating the handling of heavy guns and armor plates, resulting in a saving of time and expense; the firing butts have been improved; the building of the sea wall continued, and the general character of the place and its facilities improved as funds and opportunity would permit.

Interesting and instructive experiments with high explosives have been made.

None of the service guns or mounts have failed under test in any way; development of mounts and minor details requiring improvement, which can only be ascertained on the firing ground, have been made as discovered, and since the establishment of the gun factory and this necessary adjunct, there has been a steady and marked improvement in new types of gun mounts designed and issued to the service, in simplicity, efficiency, and ease of manipulation.

This station lacks but one feature of importance, namely, an overland range for distant firing for the purpose of greater accuracy in ranging guns, recovering projectiles, noting the action of fuses, etc., but the locality does not admit of this, and all long-range firing has to be done over the water, and is frequently interfered with by the presence of fishing boats and other craft.

One hundred and nineteen guns of various calibers have been prooffired during the year.

The report of the inspector of ordnance in charge is appended and contains items of much interest.

NAVAL TORPEDO STATION.

Up to June 15, 1897, this important branch of the Naval Station, Newport, R. I., was in charge of Commander G. A. Converse, U. S. N., whose excellent services deserve special mention. Lieut. Commander T. C. McLean, U. S. N., relieved Commander Converse on the above date, and is now in charge.

The general condition of the station is excellent. The report of the inspector of ordnance in charge, hereto appended, shows in detail the work accomplished and the needs of the station.

Instruction in practical work connected with the care, adjustment, and firing of automobile torpedoes has been given to 35 officers of the Navy, 1 officer of the Army, and 5 officers of the Naval Militia, and to 56 seamen and 16 apprentices. Instruction in diving has been given to 37 men.

The station affords admirable facilities for giving instruction of the above kind, and its value to the naval service can not be questioned.

The station should always have two or more modern torpedo boats attached to it for the purpose of giving practical instruction, and all torpedo boats on this coast should go to the station and be attached to it long enough to have their outfits properly adjusted and to shake down before going out for regular duty.

Considerable quantities of gun cotton and smokeless powder have been manufactured during the past year at this station for guns of minor caliber, and researches have been successfully made, resulting in the development of a special variety of nitrocellulose, soluble in ether alcohol, forming a colloid of extreme toughness, that burns progressively in a very regular manner, and which may be converted directly into smokeless powder, decomposing wholly into gaseous products, and possessing a high ballistic efficiency.

With the new form of colloid, velocities of about 2,500 foot-seconds have been obtained with 5 and 6 inch rapid-fire guns, corresponding to pressures of about 16 tons per square inch.

With the 1-pounder rapid-fire guns, velocities of 2,800 foot-seconds are readily obtained within the pressure limit of 15 tons to the square inch. This powder is quite smokeless.

Much credit is due to Lieut. J. B. Bernadou, U. S. N., recently attached to the station, for his intelligent and successful efforts in the development of smokeless powder. The problem may be considered solved, and the capacity of the powder factory at the torpedo station being insufficient to produce large quantities, the Bureau has contracted with Messrs. Du Pont, De Nemours & Co., on this side, and with the California Powder Company, on the Pacific, to each manufacturer 100,000 pounds of smokeless powder, made in conformity with the Bureau's formulæ; and deliveries have in part been made, and this powder will be issued to vessels in commission as soon as it can be procured and prepared.

The development of the new form of soluble nitrocellulose has necessitated certain modifications in methods of manufacture of gun cotton and in the plant for the manufacture of nitrocellulose at the torpedo station, and an item for this purpose has been included in the annual estimates.

The Bureau is of the opinion that for national and economic reasons the Department should own and operate a smokeless-powder factory at which it could produce a part of the powder required for the naval service, and an item has been inserted in the annual estimates for this purpose.

The property known as Bellevue Magazine, on the Potomac, just below Washington, would be an excellent site, and it is conveniently reached by water and by railroad and is but two hours' distance from the Naval Proving Ground. The present price of smokeless powder procured by purchase is very high, and the Bureau believes it can produce it in large quantities at a greatly reduced price. The success of the Bureau with its gun factory encourages it to believe that it could do equally well in the manufacture of other munitions of war.

The reserve supply of powder on hand is limited, and no effort has been made to accumulate a large quantity, owing to the uncertain state of the development of powders and because it was believed that the brown powders now in use must soon give way to the improved smokeless powders. A point has now been reached when a satisfactory powder of the latter class has been developed, which is believed to possess excellent keeping qualities and to be superior in every way to the brown powders; and the Bureau recommends that a quantity sufficient to refill all the vessels of the Navy be procured, and with this in view has inserted an item in the annual estimates to begin its accumulation.

DONATIONS OF CONDEMNED ORDNANCE.

Table showing all guns, mounts, and shell donated to G. A. R. posts, etc., in accordance with act of Congress approved May 22, 1896—Public, No. 146.

Name.	XIII-inch.			XI-inch.			100-pounder.			32-pounder.		
	Guns.	Mounts.	Shell.	Guns.	Mounts.	Shell.	Guns.	Mounts.	Shell.	Guns.	Mounts.	Shell.
From Portsmouth Navy-Yard	7	......	....	7	......	593	5	....	......	25	25	....
From Boston Navy-Yard	10	12	....	1	......	4,274	17	15	755	170	30	206
From New York Navy-Yard	10	9	....	13	......	2,051	47	....	......	.....	......	....
From League Island Navy-Yard	.....	......	....	.....	......	402	15	....	98	.....	......	....
From Washington Navy-Yard	.....	......	....	.....	......	......	.....	....	......	23	23	....
From Mare Island Navy-Yard	.....	......	....	1	......	......	.....	....	......	.....	......	....
Total	27	21	....	22	......	7,320	84	15	853	218	78	206

Table showing all guns, mounts, and shells donated to G. A. R. posts, etc., in accordance with act of Congress approved May 22, 1896—Public No. 146—Continued.

Name.	12-pounder.			VIII-inch.			IX-inch.			20-pounder Parrott.			Total.		
	Guns.	Mounts.	Shell.	Guns.	Mounts.	Shell.	Guns.	Mounts.	Shell.	Guns.	Mounts.	Shell.	Guns.	Mounts.	Shell.
From Portsmouth Navy-Yard	....	2	....	....	...	...	...	...	....	....	....	.....	44	27	593
From Boston Navy-Yard	....	....	....	....	...	...	...	...	....	....	....	.....	198	57	5,235
From New York Navy-Yard	....	....	....	8	...	...	1	...	8	....	....	.....	79	9	2,059
From League Island Navy-Yard	....	....	....	....	...	...	...	...	....	....	....	.....	15	.....	500
From Washington Navy-Yard	14	12	....	....	...	...	...	...	....	....	....	494	37	35	494
From Mare Island Navy-Yard	4	4	84	....	...	...	...	...	700	....	....	.....	5	4	784
Total	18	18	84	8	...	...	1	...	708	....	....	494	378	132	9,665

OFFICERS PERFORMING ORDNANCE DUTY.

The following are the officers of the Navy employed under this Bureau, with their respective stations and duties:

Name and station.	Duties.
Bureau of Ordnance.	
Lieut. A. E. Culver	Ships' allowances and requisitions and preparation of new ordnance instructions.
Lieut. H. C. Poundstone	Torpedo outfits of vessels.
Lieut. F. K. Hill	All mounts, except those for turrets and torpedo boats; castings, forgings, etc., for same; ammunition hoists, except for turrets; magazines on board ship and naval magazines; armament of auxiliary cruisers; disposition of old material at navy-yards and magazines; supplies, etc., for Naval Militia; powder tanks.
Lieut. C. M. Knepper	Development of engineering and construction of turret mounts.
Lieut. I. K. Seymour	Manufacture of armor.
Prof. P. R. Alger	Marine artillery construction, gun steel, powder, etc.
Navy-yard, Washington, D. C.	
Commander E. C. Pendleton	Superintendent Naval Gun Factory.
Lieut. K. Rohrer	General outside work, all proving ground work, care and installation of machinery, etc.
Lieut. F. E. Greene	4, 5, and 6 inch guns, mounts, and all accessories.
Lieut. R. F. Nicholson	8, 10, 12, and 13 inch guns, mounts, and all accessories.
Lieut. J. M. Bowyer	Secondary batteries, mounts, and all accessories.
Lieut. T. C. Fenton	In charge of drafting room.
Lieut. (J. G.) J. L. Jayne	Torpedo mounts, projectiles, ammunition boxes, firing locks, pressure gauges, shell caps, and miscellaneous work.
Lieut. J. M. Poyer	Secondary batteries, mounts, and all accessories.
Gunner George Fouse	Member of board of inspection.
Gunner J. J. Walsh	In charge of Bellevue magazine, and shipment of ships' outfits, manufacture of cartridge bags, and miscellaneous articles.
Navy-yard, Norfolk, Va.	
Commander George E. Ide	Inspector of ordnance.
Gunner Samuel Cross	On duty at St. Helena and at yard.
Gunner Patrick Lynch	On duty at naval magazine, Norfolk.
Navy-yard, League Island, Pa.	
Commander E. Longnecker	Inspector of ordnance.
Gunner C. H. Venable	Naval magazine, Fort Mifflin, Pa.
Gunner George Cross	Yard duty.
Navy-yard, New York.	
Commander William Swift	Inspector of ordnance.
Lieut. C. F. Pond	Assistant inspector of ordnance.
Gunner M. W. Gilmartin	Yard duty.
Gunner C. Dugan	In charge of naval powder depot, near Dover, N. J
Gunner H. B. Soule	In charge of Fort Lafayette magazine.
Navy-yard, Boston, Mass.	
Commander Samuel W. Very	Inspector of ordnance.
Gunner Charles B. Magruder	In charge of naval magazine, Chelsea, Mass.
Gunner John R. Grainger	In charge of niter depot, Malden, Mass.

Officers performing ordnance duty—Continued.

Name and station.	Duties.
Navy-yard, Portsmouth, N. H.	
Lieut. Comdr. C. O. Allibone	Inspector of ordnance.
Gunner Otto Fries	Yard duty.
Navy-yard, Mare Island, Cal.	
Lieut. F. M. Bostwick	Inspector of ordnance.
Gunner William Halford	In charge of naval magazine.
Gunner J. R. Ward	Yard duty.
Torpedo station, Newport, R. I.	
Lieut. Commander T. C. McLean	Inspector of ordnance, in charge of station.
Lieut. K. Niles	Assistant to inspector of ordnance.
Lieut. F. F. Fletcher	Do.
Ensign G. R. Evans	Do.
Ensign J. R. Campbell	Do.
Gunner H. A. Eilers	Do.
Naval Proving Ground, Indian Head, Md.	
Commander A. R. Couden	Inspector of ordnance, in charge of station.
Lieut. M. E. Hall	Assistant inspector of ordnance.
Lieut. A. Rust	Do.
Gunner H. Sinclair	Ordnance duty.
Private works.	
Commander G. W. Pigman	Inspector of ordnance, Newport News Shipbuilding and Dry Docks Co.
Lieut. R. F. Lopez	Inspector of ordnance, Union Iron Works.
Commander H. Elmer	Inspector of ordnance, Wm. Cramp & Sons Ship and Engine Building Co.
Lieut. J. B. Bernadou	Inspector of ordnance, Columbian Iron Works and Dry Docks Co.
Lieut. W. M. Wood	Inspector of ordnance, in charge of the manufacture of rapid-fire guns, etc., at the works of the American Ordnance Co., Bridgeport, Conn.
Ensign F. H. Schofield	Inspector of ordnance in charge of the manufacture of rapid-fire and machine guns and their ammunition and of small arms and ammunition at the works of the Colt's Patent Fire Arms Manufacturing Co., Hartford, Conn.; Union Metallic Cartridge Co., Bridgeport, Conn.; Winchester Repeating Arms Co., New Haven, Conn.; American Ordnance Co., Lynn, Mass., and of powder tanks at the works of J. B. Chapman & Co., Springfield, Mass.
Lieut. H. O. Rittenhouse	Inspector of ordnance at the works of the E. W. Bliss Co., Brooklyn, N. Y., of the manufacture of Whitehead torpedoes and their apparatus; at the works of the United States Projectile Co., Brooklyn, N. Y., of projectiles, and at the works of I. G. Johnson & Co., New York City, of gun-carriage castings.
Ensign H. H. Hough	Assistant to Lieut. H. O. Rittenhouse, inspector as above.
Lieut. Commander J. C. Wilson	Inspector of ordnance in charge of the manufacture of gun forgings and projectiles at the works of the Midvale Steel Co., Philadelphia, Pa.; of gun-carriage castings at the works of the American Steel Casting Co., Thurlow, Pa., and at the works of the B. Atha & Illingworth Co., Newark, N. J.
Ensign G. S. Galbraith	Assistant to Lieut. Commander J. C. Wilson, inspector as above.
Lieut. W. M. Irwin	Inspector of ordnance in charge of the manufacture of armor and gun forgings at the works of the Bethlehem Iron Co., South Bethlehem, Pa.; also of projectiles at the works of the Carpenter Steel Co., Reading, Pa., and the Taylor Iron and Steel Co., High Bridge, N. J.
Lieut. P. J. Werlich	Assistant to Lieut. W. M. Irwin, inspector as above.
Ensign A. Althouse	Inspector of ordnance in charge of the manufacture of armor at the works of the Carnegie Steel Co., Pittsburg, Pa., and of projectiles at the works of the Firth-Sterling Steel Co., Demmler, Pa.

The following papers accompany this report:

A. Abstract of offers for furnishing supplies or services and which were contracted for by the Bureau of Ordnance during the fiscal year ending June 30, 1897.

B. Detailed estimates for the fiscal year ending June 30, 1899.

C. Annual report of the superintendent of the Naval Gun Factory.

D. Annual report of the inspector of ordnance in charge of the Naval Torpedo Station, Newport, R. I.

E. Annual report of the inspector of ordnance, Hartford, Conn.

F. Annual report of the inspector of ordnance in charge of the Naval Proving Ground, Indian Head, Md.

Respectfully,

CHARLES O'NEIL,
Chief of Bureau of Ordnance.

The SECRETARY OF THE NAVY.

A.

Abstract of offers for furnishing supplies or services, and which were contracted for by the Bureau of Ordnance during the fiscal year ending June 30, 1897, and contracts awarded thereon.

NAVAL MAGAZINE, FORT MIFFLIN, PA.

[Advertisement dated July 25, 1896.]

Erection of buildings, etc.:

John L. Grim	$63,919.00
Isaac A. Walker & Son	[1] 49,708.19
Samuel Hart & Sons	58,773.00
A. S. Reed & Bro. Co	61,592.00
Samuel R. Riley	66,399.00
E. Hart	68,699.00

B.

Estimates of appropriations required for the service of the fiscal year ending June 30, 1899, by the Bureau of Ordnance, Navy Department.

Detailed objects of expenditure and explanations.	Estimated amount which will be required for each detailed object of expenditure.	Total amount to be appropriated under each head of appropriation.	Amount appropriated for the current fiscal year ending June 30, 1898.
SALARIES.			
Chief clerk (R. S., p. 70, sec. 416; Feb. 19, 1897)	$1,800.00		
Draftsman (same acts)	1,800.00		
One assistant draftsman (July 11, 1888; vol. 25, p. 283, sec. 1; Feb. 19, 1897)	1,400.00		
One clerk of class 3 (R. S., p. 27, sec. 167; Feb. 19, 1897)	1,600.00		
Two clerks of class 2 (same acts)	2,800.00		
One clerk (same acts)	1,000.00		
One assistant messenger (same acts)	720.00		
One laborer (same acts)	660.00		
		$11,780.00	$11,780.00
ORDNANCE AND ORDNANCE STORES.			
Procuring, producing, preserving, and handling ordnance material; for the armament of ships; for fuel, material and labor to be used in the general work of the Ordnance Department; for furniture at magazines, at the ordnance dock, New York, and at the Naval Ordnance Proving Ground (Mar. 3, 1897)	280,000.00		
NOTE.—An increase of $100,000 over the usual allowance under this item is asked for on account of the additional expense incident to fitting out and maintaining ships in commission.			
Expense of target practice (Mar. 3, 1897)	15,000.00		
Maintenance of proving ground (Mar. 3, 1897)	5,000.00		
Reserve supply of ammunition (Mar. 3, 1897)	500,000.00		
For the purchase and erection of new and improved machinery for the shops of the gun plant at the Washington Navy-Yard (submitted)	36,000.00		

---

[1] Accepted. Contract dated August 27, 1896.

mates of appropriations required for the service of the fiscal year ending June 30, 1899, by the Bureau of Ordnance, Navy Department—Continued.

etailed objects of expenditure and explanations.	Estimated amount which will be required for each detailed object of expenditure.	Total amount to be appropriated under each head of appropriation.	Amount appropriated for the current fiscal year ending June 30, 1898.
RDNANCE AND ORDNANCE STORES—continued.			
e purchase and installation of cartridge-making inery (submitted)	$50, 000. 00		
ping armor-piercing shell now on hand (submitted)	100, 000. 00		
sion of ordinary 6-inch guns to rapid-fire (submit-	25, 000. 00		
		$1, 011, 000. 00	$850, 000. 00
SMOKELESS POWDER.			
purchase of smokeless powder (submitted)		1, 000, 000. 00	
REPAIRS, ORDNANCE.			
ry repairs to ordnance buildings, magazines, gun , boats, lighters, wharves, machinery, and other s of like character (Mar. 3, 1897)		40, 000. 00	30, 000. 00
.—An increase of $10,000 over the usual allowance his head is asked to make urgent and necessary at magazines.			
CONTINGENT, ORDNANCE.			
aneous items, viz: Freight to foreign and home ns; advertising; cartage and express charges; s to fire engines; gas and water pipes; gas and tax at magazines; tolls, ferriage, foreign postage, legrams to and from the Bureau; technical books, ncidental expenses attending inspection of ord- material (Mar. 3, 1897)		8, 000. 00	8, 000. 00
ARMING AND EQUIPPING NAVAL MILITIA.			
ccouterments, signal outfits, boats and their equip- . and the printing of the necessary books of in- ion for the naval militia of the various States, such regulations as the Secretary of the Navy rescribe (Mar. 3, 1897)		50, 000. 00	50, 000. 00
RESERVE GUNS FOR AUXILIARY CRUISERS.			
the armament of modern guns for auxiliary cruis- entioned in the act approved Mar. 3, 1891, and in n 4 of the act approved May 10, 1892 (Mar. 3, 1897)		500, 000. 00	250, 000. 00
SMOKELESS-POWDER FACTORY.			
erection of buildings on Government ground for anufacture of smokeless powder, with the neces- nachinery and equipment (submitted)		93, 727. 00	
CIVIL ESTABLISHMENT.			
ard, Portsmouth, N. H.:			
writer, when required (Mar. 3, 1897)	500. 00		
ard, Boston, Mass.:			
writer, when required (Mar. 3, 1897)	500. 00		
ard, New York:			
clerk (Mar. 3, 1897)	1, 400. 00		
ard, Washington, D. C.:			
chemist (Mar. 3, 1897)	2, 500. 00		
clerk (Mar. 3, 1897)	1, 600. 00		
Do	1, 200. 00		
writers, at $1,017.25 each (Mar. 3, 1897)	2, 034. 50		
draftsman (Mar. 3, 1897)	1, 800. 00		
ee draftsmen, at $1,081 each (Mar. 3, 1897)	3, 243. 00		
assistant draftsman (Mar. 3, 1897)	772. 00		
foremen, at $1,500 each (Mar. 3, 1897)	3, 000. 00		
copyists, at $720 each (Mar. 3, 1897)	1, 440. 00		
telegraph operator and copyist (Mar. 3, 1897)	900. 00		
ard, Norfolk, Va.:			
clerk (Mar. 3, 1897)	1, 200. 00		
ard, Mare Island, Cal.:			
writer (Mar. 3, 1897)	1, 017. 25		
rdnance proving ground:			
writer (Mar. 3, 1897)	1, 017. 25		

Estimates of appropriations required for the service of the fiscal year ending June 30, 1899, by the Bureau of Ordnance, Navy Department—Continued.

Detailed objects of expenditure and explanations.	Estimated amount which will be required for each detailed object of expenditure.	Total amount to be appropriated under each head of appropriation.	Amount appropriated for the current fiscal year ending June 30, 1898.
CIVIL ESTABLISHMENT—continued.			
Naval Torpedo Station, Newport, R. I.:			
One chemist (Mar. 3, 1897)	$2,500.00		
One clerk (Mar. 3, 1897)	1,200.00		
One draftsman (Mar. 3, 1897)	1,500.00	$29,324.00	$29,324.00
NAVAL MAGAZINE, FORT MIFFLIN, PA.			
For additional magazine, fixed-ammunition house, two gun-cotton houses, fire plant, tramway, two filling houses, remodeling old building for watchman's quarters, cistern, converting old gunner's house into storehouse, lightning conductors, with the necessary fittings to same, at the naval magazine, Fort Mifflin, Pa. (submitted)		45,000.00	
TORPEDO STATION.			
Labor, material, freight, and express charges; general care of and repairs to grounds, buildings, and wharves; boats; instruction; instruments; tools; furniture; experiments, and general torpedo outfits (Mar. 3, 1897)	65,000.00		
NOTE.—Needed repairs and extension of the work of the station render an excess of $5,000 in this item over the usual allowance necessary.			
For the manufacture of smokeless powder (submitted)	22,000.00		
Enlarging storehouse, improvements and repairs to seaman gunners' quarters, and providing more adequate accommodations for the increasing number of torpedo boats sent to the station for outfits and torpedo work (submitted)	10,500.00	97,500.00	71,500.00
FITTING FORT LAFAYETTE AS MAGAZINE.			
For the necessary improvement and fittings at Fort Lafayette, New York Harbor, to render same suitable for the storage, handling, and distribution of ammunition for the naval service (submitted)		15,000.00	
MACHINERY FOR ORDNANCE BUILDING, NAVY-YARD, LEAGUE ISLAND.			
For boilers, machinery, tools, and appliances for the proposed new ordnance building at the navy-yard, League Island, Pa. (submitted)		40,000.00	
RESERVE TORPEDOES AND APPLIANCES.			
For reserve torpedoes and torpedo appliances (submitted)		250,000.00	
INCREASE OF THE NAVY, ARMOR AND ARMAMENT.			
Toward the armament and armor of domestic manufacture for the vessels authorized by the act of July 26, 1894; of the vessels authorized by the act of Mar. 2, 1895; of those authorized by the act of June 10, 1896, and of the three torpedo boats authorized by the act of Mar. 3, 1897 (Mar. 3, 1897)		4,254,800.00	7,220,796.00

Respectfully submitted.

CHARLES O'NEIL,
Chief of Bureau of Ordnance.

BUREAU OF ORDNANCE,
September 15, 1897.

C.

ANNUAL REPORT OF THE SUPERINTENDENT OF THE NAVAL GUN FACTORY.

UNITED STATES NAVY-YARD,
Washington, D. C., September 9, 1897.

SIR: I have the honor to submit the following report of the operations at the Naval Gun Factory for the past year:

Thirteen-inch guns.—Since the last annual report five 13-inch guns have been completed, three more are assembled and nearly finished, excepting their breech mechanism, which is now being fitted.

The forgings for fourteen 13-inch guns have been ordered; some have been received and work commenced on them.

Twelve-inch guns.—The four 12-inch guns of the *Iowa* have been proved and are now on board ship. The forgings for one 12-inch gun have been received and the work on them previous to assembling is well advanced.

Eight-inch guns.—The 8-inch guns for the *Kearsarge* and *Kentucky* have been finished and are now awaiting proof.

The 8-inch nickel-steel gun was successfully disassembled by means of the Sellers furnace.

The two 8-inch guns belonging to the *Atlanta* are now being converted to a more modern type, in order that they may suit better-designed gun carriages and be fitted with the the latest breech mechanism.

The forgings for the additional 8-inch guns have been received.

Six-inch guns.—Two 6-inch guns have been completed; eight are assembled and nearly finished, and eight more are partly assembled. The forgings for thirty-eight 6-inch guns have been ordered and some of the forgings have been delivered.

Eight 6-inch guns have been converted, and the conversion of nineteen more has been ordered to rapid-fire guns.

Five-inch guns.—Thirty-four 5-inch guns have been completed; two are assembled and nearly completed; five partly assembled, and forgings are on hand or have been ordered for twenty-five more guns of this caliber.

Four-inch guns.—Thirty-nine 4-inch guns have been completed, and forgings for fifteen more have been ordered.

A 13-inch tube was bored and rifled to a 12-inch caliber, and used for the Gathmann experiments with high explosives. Another 13-inch tube has been ordered to replace this tube destroyed.

Guns completed and in progress.

	Completed Sept. 15, 1896.	Completed Sept. 1, 1897.	Assembled and nearly completed.	Partly assembled.	Forgings in hand and ordered.	Guns converted.	Guns ordered to convert.
13-inch, 35 calibers	12	5	3		14		
12-inch, 35 calibers	13				1		
10 inch, 30 calibers	24						
10 inch, 35 calibers	2						
8-inch, 30 calibers	5						4
8 inch, 35 calibers	61	8			2		
8-inch, 40 calibers	2						
6-inch, 30 calibers	123					8	19
6 inch, 35 calibers	6						
6-inch, 40 calibers	12	2	8	8	38		
5-inch, 30 calibers	2						
5-inch, 40 calibers	83	34	2	5	53		
4-inch, 40 calibers	105	39					
3-inch field guns		50					

Thirteen-inch turret mounts.—One mount for a gun of this caliber, spring-return, and capable of being loaded, elevated, and depressed by hand, is now being manufactured.' The material for seven more mounts of this design has been ordered, the eight being for the battle ships *Kearsarge* and *Kentucky.*

Twelve-inch turret mounts.—The four spring-return mounts for the 12-inch guns of the *Iowa* were all tested satisfactorily and are now on board of that vessel.

One 12-inch mount, Mark I, is being manufactured to replace the 13-inch mount destroyed at the proving ground by the premature explosion of the Gathmann projectile.

Eight-inch mounts.—Sixteen 8-inch turret mounts have been completed. One of a slightly different design for the *Kearsarge* is nearly completed, and the material for seven more is ordered.

One 8-inch pivot mount designed for the *Boston-Atlanta* class is under construction, and the material for four more of the same class has been ordered.

Mounts completed and in progress.

	Completed Sept. 15, 1896.	Completed Sept. 1, 1897.	Nearly completed.	Partly completed.	Others to be manufactured.
13-inch turret	13			1	7
12-inch turret	9	4			1
10-inch turret	10				
8-inch:					
Turret	40	16		1	7
C. P	18			1	4
6-inch:					
Broadside	21				
C. P	101				
R. F	7	1			
Pedestal		1		1	75
5-inch:					
R. F	69				
Pedestal	13	13	14	45	25
4-inch:					
R. F	77				
Pedestal	2	66		1	15
3-inch field-gun carriages		50			

The following mounts for secondary batteries, etc., have been manufactured:

1-pounder recoil mounts	37
6-pounder recoil mounts	66
1-pounder cage stands	53
6-pounder cage stands	38
1-pounder boat circles	74
6-pounder port mounts	12
Colt's adapters	22
Torpedo mounts	19

AMMUNITION HOISTS.

The 8-inch ammunition hoists for the *Brooklyn* and *Iowa* have been completed and shipped.

The 13-inch ammunition hoist of the new design for the *Kearsarge* and *Kentucky* is now being made.

The 13-inch experimental rammer is completed, and experiments are being conducted with it in order to correct any defects that may exist therein.

ARTICLES MANUFACTURED.

Bags, muzzle	12	Lanyards, lock	152
Bags, division	45	Caps, canvas, sponge	224
Bags, cartridge	40,342	Frogs, leather, cutlass	210
Bags, ignition	31,062	Scabbards, leather, cutlass	575
Covers, canvas, breech of guns	25	Packing, leather, mounts	633
Covers, canvas, gun	235	Single sticks	653
Covers, canvas, gun and carriage	54	Magazine shoes (pairs)	62
Covers, sheepskin, sponge	119	Fuses, navy time	3,145
Shrapnel, 4-inch	823	Fuses, Schenkl, percussion	5,163
Shrapnel, 5-inch	887	Shrapnel, 6-inch	500
Fuses, base	29,669	Swabs, magazine and gun	316
Fuses, boxer	500	Gun locks	73
Signals, Very's red	11,376	Gun locks (altered)	37
Signals, Very's green	11,376	4-inch shell boxes	5,723
Signals, blue lights	437	6-pounder boxes	2,002
Signals, rockets	450	6-millimeter rifle racks	296
Quick match (yards)	5,000	3-inch gun locks	36
Gas-check pads	62	13-inch powder tanks	87

There were also a large number of articles manufactured and work performed in connection with the preparation of miscellaneous equipments and fittings for ships, as well as for carrying on the current work in this yard.

The following guns and mounts have been shipped:

Main battery guns.

64 4-inch R.
145 5-inch R. F.
10 8-inch B. L. R.
4 12-inch B. L. R.

Main battery mounts.

65 4-inch.
28 5-inch.
10 8-inch.
2 12-inch.

Secondary battery mounts.

1-pounder recoil mounts	38	1-pounder conning tower sockets	3
6-pounder recoil mounts	43	1-pounder cage stands, ship	27
1-pounder top mounts	2	1-pounder cage stands, boat	35
1-pounder port sill mounts	2	6-pounder cage stands	22
6-pounder port sill mounts	12	Adapters for Colt's gun	17
Torpedo tubes	19	Subcaliber attachment, caliber 45	11
1-pounder rail sockets	12	Subcaliber attachment, 1-pounder	2
6-pounder rail sockets	10		

There has also been issued to the service sixteen of the new 3-inch field guns, complete with carriages, spare parts and accessories. Twelve more guns and carriages are now being prepared for shipment to the Naval Academy.

The fourteen 5-inch pedestal mounts for the *Chicago's* new battery have been shipped, and the 5-inch guns are completed and awaiting shipment.

The outfits of the following ships were completed and shipped:

Iowa.
Wilmington.
Nashville.
Helena.
Annapolis.
Princeton.
Marietta.
Wheeling.
Vicksburg.
Newport.
Foote.
Rodgers.
Winslow.
Porter.
Dupont.
Rowan.

Articles were manufactured and shipments made to ships in commission and cruising, as follows:

Oregon.
Massachusetts.
Indiana.
Minneapolis.
Brooklyn.
San Francisco.
Concord.
Philadelphia.
Monadnock.
Petrel.
Terror
Monterey.
Olympia.
Machias.
Essex.
Alliance.
Yorktown.
Castine.
Boston.
Raleigh.
Puritan.
Montgomery.
New York.
Dolphin.
Texas.
Amphitrite.
Maine.
Marblehead.
Michigan.
Detroit.
Cincinnati.
Standish.
Vesuvius.

Articles manufactured and shipped to ships refitting and building:

Chicago.
Atlanta.
Columbia.
Charleston.
Newark.
Alabama.
Illinois.
Miantonomah.
Wisconsin.
Kearsarge.
Kentucky.

Freight shipped as follows.

	Pounds.		Pounds.
Navy-yard, New York	116, 759	Torpedo boats	14, 427
Navy-yard, League Island	73, 802	Ships, refitting	99, 928
Navy-yard, Mare Island	3, 786	Ships, building	838
Navy-yard, Norfolk	3, 674	Ships, cruising	134, 529
Navy-yard, Portsmouth	2, 822	Naval militia	1, 729
Navy-yard, Boston	2, 015	Miscellaneous	342, 366
Naval Academy	5, 011		
New ships, completed	1, 575, 765	Total	2, 377, 451

The following amount of castings was made in the foundry during the year:

Brass castings.........pounds..	478, 243	3-inch common shell	150
Iron castings.........do....	699, 794	12-inch common shell	33
3-inch solid shot	150	12-inch gun-cotton shell	5

Seven hundred and seventy-five armor-piercing shell, from 6 to 13 inches, inclusive, have been fitted to take base fuses.

The jigs and templates for the manufacture of one hundred 1-pounder Maxim-Nordenfelt guns have been commenced and requisition has been made for all the material for the guns.

The gun locks for the large-caliber guns have been modified to a more effective type as fast as they have been received.

The average monthly working force has been 877.

The following work has been performed in the chemical laboratory by the chemist, Joseph Westesson, in charge:

For Bureau of—	Analyses.	Investigations.	Expert opinions.
Ordnance	115	6	5
Yards and Docks	40		
Equipment	106		1
Supplies and Accounts	3	3	4
Steam Engineering	13		
Total	277	9	10

REPAIRS.

The alterations which were being made to the foundry are now completed, and the installation of new cupolas, blowers, electric crane and runway, jib cranes, elevators, etc., enlarged the capacities and increased the facilities to all necessary requirements at the present date.

The west gun carriage shop has been altered, and the improvements therein made caused the work to be performed to better advantage.

IMPROVEMENTS.

I beg leave to repeat the recommendation of my predecessor, as follows:

> A building for the stowage of finished guns and mounts is greatly needed, there being at present no provision for such purpose. Both guns and mounts are too costly and too subject to injury to be left in the gun park, and guns and mounts for auxiliary cruisers and for reserve for the Navy must be properly stored and cared for. Data for such a building have been prepared and submitted to the Bureau of Yards and Docks.
>
> A suitable loft for the stowage of patterns is also needed, and this also has been brought to the attention of the same bureau.

MACHINERY.

In order to have the Naval Gun Factory in good working order at all times, a moderate sum is needed annually for the purchase of new machinery and tools, and the sum of $36,000 is submitted in the annual estimate.

SEAMEN GUNNERS.

Number in class September 1, 1896	23
Number reported during the year	78
Total	101
Number transferred to torpedo station	66
Number transferred to sea at their own request	3
Number tranferred to sea for misconduct	2
Number transferred to sea by order of Bureau of Navigation	1
Number deserted	1
Number discharged	2
Number in class August 31, 1897	26
Total	101

On April 23, 1897, the seamen's quarters were moved into the two upper stories of the building occupied by the general storekeeper. These quarters are commodious, well ventilated, and in excellent sanitary condition, and the health of the class during the present summer has been excellent.

Very few serious breaches of discipline have occurred during the year, and the conduct of a large majority of the men has been excellent.

The following have reported during the year for duty with the class and as assistants to the officer in charge, viz:

Gunner W. G. Moore.
Acting Gunner L. T. Wallace.
Chief Master at Arms Cornelius Moran.
Chief Gunner's Mate F. A. McGregor.

Ensign Williams was detached from duty in charge of the class on July 24 last, and was temporarily relieved by Lieutenant Almy. On August 14, 1897, Lieut. J. M. Robinson relieved Lieutenant Almy.

OFFICERS ON DUTY.

Commander Charles O'Neil, superintendent Naval Gun Factory, was detached from duty May 31, 1897, when he was relieved by Commander E. C. Pendleton.

The following officers now attached to the yard are performing duty at the gun factory:

Lieut. K. Rohrer, general outside work, all proving-ground work, care and installation of machinery, etc.

Lieut. J. H. Moore, senior member of labor board and in charge of department of yards and docks.

Lieut. F. E. Greene, 4, 5, and 6 inch guns, mounts, and all accessories.

Lieut. R. F. Nicholson, 8, 10, 12, and 13 inch guns, mounts, and all accessories.

Lieut. J. M. Bowyer, secondary batteries, mounts, and all accessories.

Lieut. T. C. Fenton, in charge of drafting room.

Gunner George Fouse, board of inspection.

Gunner J. J. Walsh, in charge of Bellevue magazine, preparation and shipment of ordnance outfits, and manufacture of miscellaneous articles.

The following officers have been detached during the year: Lieut. Commander W. H. Reeder, Lieut. C. J. Badger, Lieut. T. S. Rodgers, Lieut. J. Strauss, Ensign H. K. Benham, and Ensign G. W. Williams.

The following officers attached to the yard, under instruction, during the year, have been detached: Commander G. W. Pigman, Commander E. W. Watson, Commander J. F. Merry, Commander J. J. Hunker, Commander C. C. Todd, Lieut. R. F. Lopez, Ensign F. H. Schofield, Lieut. L. Karmany, U. S. M. C., and Lieut. M. J. Shaw, U. S. M. C.

Respectfully,

E. C. PENDLETON,
Commander, U. S. N., Superintendent Naval Gun Factory.

The COMMANDANT,
Washington Navy-Yard.

D.

ANNUAL REPORT OF NAVAL TORPEDO STATION.

TORPEDO STATION,
Naval Station, Newport, R. I., September 6, 1897.

SIR: I have the honor to report the work done at this station during the past year and the condition of the station as follows:

INSTRUCTION.

The instruction of officers has been confined to practical work with torpedoes in the assembling room, at the testing and firing stage, and on boats under way firing torpedoes at targets.

Thirty-five officers of the Navy, one officer of the Army, and five officers of Naval Militia have taken course of instruction at this station during the past year.

The instruction of petty officers and seamen has been carried on during the year in accordance with the instructions of the Bureau of Navigation contained in letters No. 44854, of June 22, 1895, and No. 13172, of May 26, 1896, allotting twenty-three weeks for the course, including diving.

These instructions assign the time as follows:

	Weeks.
General electrical work	4
Lighting and motors	4
Explosives and torpedo material	4
Torpedoes	4
Care and manipulation of high-speed engines	3
Diving (optional)	3
General review and examination	1
Total	23

The seamen and apprentices for this course of instruction have been received from time to time at irregular intervals and in varying numbers from the Washington Navy-Yard, where the first part of their instruction was given to them.

The following table shows the number reporting each month during the year:

Month.	Seaman.	Apprences.	Month.	Seamen.	Apprentices.
1896.			1897.		
September	1	1	March	8	2
October	4	....	April	2	....
November	2	1	May	3	....
December	2	....	June	4	1
			July	2	3
1897.			August	12	1
January	8	4	Total	56	16
February	8	3			

Number graduated from September 1, 1896:	
Seamen	45
Apprentices	6
Total	51
Number transferred to general service for misconduct:	
Seamen	3
Apprentices	1
Total	4
Number discharged before course was completed from September 1, 1897:	
Seamen	1
Apprentices	7
Total	8
Number returned to complete course of instruction after reenlistment	7
Number under instruction September 1, 1897:	
Seamen	21
Apprentices	6
Gunner's mates	2
Total	29
Number of men who have taken course of instruction in diving	37

Date of suspending course in diving on account of season, October 25, 1896.

Date of resuming course in diving, April 18, 1897.

The course of instruction has suffered some interruptions, varying from four to ten days in time, on account of the necessity of furnishing crews for the vessels sent from this station for duty on the numerous trial trips of new vessels which have occurred during the year.

The results would be more satisfactory if the classes could be formed at stated times, or if there could be uniformity as to the times and the numbers in reporting.

During the time that the torpedo boats *Ericsson* and *Cushing* have been attached to this station their officers and men have been hard at work, and have had a great deal of instruction and practice in handling and maneuvering the boats and in constantly overhauling, adjusting, and firing torpedoes until they have become expert.

This has been made possible by the facilities afforded by the torpedo station for keeping the boats and their torpedo material in condition for the work.

These boats have been of great assistance in giving classes of officers and men the practical instruction for which they were sent to this station.

Detailed reports of the work done by these boats have been sent to the Department.

The instruction of officers and men is a most important part of the work of the torpedo station.

Instruction in torpedo work must be had now, so that in action, in a critical moment, a great chance of success may not be turned to failure through unskillful management of torpedoes.

Instruction in the details of construction of various parts, familiarity with the operations of taking apart, assembling, and adjusting, frequent exercise in firing torpedoes from the firing stage and from boats, to gain knowledge of the performance of torpedoes under all conditions, is absolutely necessary for officers and men to make them fit to do the work in ships which have torpedoes and the work proper to the rôle of a torpedo boat in commission and equipped for active service.

This instruction and exercise, this apprenticeship, is proper to the work of the torpedo station, where special facilities are afforded. Faults corrected, accidents and derangements, due to inexperience, remedied, and experience gained at the expense of some valuable material in times of peace, will result in invaluable experience and capacity for action in time of war.

For the proper continuance of this work the full number of officers should be kept on duty at this station, and two or more torpedo boats should be attached to the torpedo station for giving classes of officers and men instruction in firing torpedoes from boats underway at high speeds, and also for the benefit to the personnel of the boats in having exercise and practice at this station, where small defects and accidents would be quickly remedied.

TORPEDOES AND TORPEDO MATERIAL.

Torpedoes and torpedo material at this station for issue are frequently inspected and kept in good condition.

Torpedoes and appliances returned for repairs are put in good condition as soon as possible.

Air compressors are tested at this station. Separators, accumulators, and other fittings are assembled, connected, and tested at this station.

MANUFACTURES.

Torpedo material, appliances and accessories, and other articles manufactured in the shops at this station for ordnance purposes continue to be of high standard.

Experimental constructions and changes in designs are made to meet the increasing requirements of modern conditions.

Excellent work is done at this station in the installation of torpedo armaments and other material pertaining to ordnance outfits of torpedo boats and other vessels.

EXPLOSIVES.

The manufacture of detonators, exploders, fuses, and primers of the various kinds and patterns used in the naval service continues excellent in material and workmanship.

GUN COTTON.

The gun-cotton factory supplies proper material for use in torpedoes, and also material of the quality required for the manufacture of smokeless powders.

SMOKELESS POWDER.

Experimental manufacture of smokeless powder has continued during the year with good results.

Considerable quantities of K powders for rapid-fire guns of smaller calibers have been manufactured. The necessity of improvement in K powders, and the desirability of substituting a single nitrocellulose of known composition in lieu of the blend of nitrocelluloses hitherto employed, have led to the continuance of experimental researches in the field of explosive action. Studies have been made during the present year to ascertain the effects of variation in mean of nitration and thickness of film upon the ballistic properties of powders formed from blended colloids, and these studies were extended to investigation of the effect of change of solvent upon the physical property of the colloid, and in relation to its manner of progressive combustion.

A second group of experiments related to the investigation of the properties of hydrocellulose and of its nitro derivatives of high and low nitration.

The third group of experimental researches related to the effect of variation of the time, mass, temperature, and strength of acids upon the nitration of cellulose in the form of cotton.

Results of the experiment of the first group have tended to the standardization of thickness of powders film to be employed with service guns of various calibers, and have led to the substitution of ether alcohol for acetone in powders built up from blends of nitrocelluloses.

The experiments with nitro-hydro celluloses gave results that proved generally negative in relation to the attempt to develop favorable ballistic action from them, and went far to prove the unfitness of these materials as ingredients for progressive powders, both on account of the extreme brittleness of all colloids formed from them and of the general instability of the higher (insoluble) nitrates of hydrocellulose.

The third group of experiments upon the nitration of cellulose under various combinations of physical and chemical conditions has led to the development of a special variety of nitrocellulose, soluble in ether alcohol, forming a colloid of extreme toughness that burns progressively in a very regular manner, and which may be converted directly into a smokeless powder decomposing wholly into gaseous products, and possessing a high ballistic efficiency.

The development of the new form of soluble nitrocellulose has necessitated certain modifications in methods heretofore employed for the manufacture of gun cotton and in the plant for manufacture of nitrocelluloses at the torpedo station.

With the new form of colloid the ballistic results have been very satisfactory.

With the 5-inch and 6-inch rapid-fire guns, velocities of about 2,500 foot-seconds, corresponding to pressures of about 16 tons per square inch.

With the 1-pounder rapid-fire guns, velocities of 2,800 foot-seconds are readily obtained within the pressure limit of 15 tons to the square inch.

This powder is quite smokeless.

Lieut. J. B. Bernadou, lately detached from this station, showed special aptitude for this work and capacity for the solution of problems involved in the prosecution of experimental work of this nature.

CHEMICAL LABORATORY.

The work done during the past year in the chemical laboratory may be classified under the following topics:

I. Torpedo station nitrocellulose.
II. Materials used in the manufacture of nitrocellulose.
III. Nitrocellulose submitted for purchase.
IV. Torpedo station smokeless powder.
V. Materials used in the manufacture of smokeless powder.
VI. Fulminate of mercury, detonators, exploders, and friction primers.
VII. Calcium phosphide.
VIII. Foreign and commercial powders and other explosives.
IX. Miscellaneous subjects.
X. Water analysis.
XI. Investigation of chemical methods.
XII. By-products.

Many special investigations and reports have been made, but the greater part of the work is experimental and routine work in connection with the manufacture of nitrocellulose and smokeless powder, which may be summarized briefly as follows:

Topic I.—A large amount of experimental and routine work has been done in connection with the manufacture of various kinds of nitrocellulose.

Heat tests in duplicate have been made on 158 samples of gun cotton during the process of purification, and complete chemical examination, including determinations of the stability, ignition temperature, insoluble nitrocellulose, cellulose, and ash, has been made of the 49 lots of gun cotton manufactured at this station.

Chemical examination has been made of several lots of pyrocellulose, a soluble nitrocellulose of high nitration, whose preparation on a manufacturing scale is now in progress.

Topic II.—Chemical examination has been made of the following materials, used in the manufacture of nitrocellulose: (1) Samples from five lots of mixed acid for the manufacture of gun cotton, in total weight 138,000 pounds; (2) samples from 11,577 pounds lot of specially prepared cotton; (3) samples from 8,500 pounds of sulphuric acid and 5,700 pounds of nitric acid; (4) samples from 25,500 pounds of mixed acid for the manufacture of pyrocellulose.

In addition to the above acids, and to numerous experiments, 5,300 pounds of nitric and sulphuric acids have been mixed at this station for use in the manufacture of pyrocellulose. Analyses from various samples have proved the accuracy of the mixing.

Topic III.—Complete chemical examination has been made of six lots of soluble nitrocellulose, in weight 6,000 pounds, supplied by E. I. Du Pont de Nemours & Co., Wilmington, Del.

Topic IV.—Determinations have been made of the per cent of nitrogen and of volatile substances, and of the specific gravity, stability, and ignition temperature of various samples of torpedo-station smokeless powder. The greater part of the work on smokeless powder has been concerned with its synthesis rather than its analysis, and is discussed in the next topic.

Topic V.—All of the ingredients of the torpedo-station smokeless powder have been analyzed in this laboratory.

Heat tests and the determinations of the per cents of nitrogen and of moisture have been made in 61 samples of torpedo-station gun cotton, 57 samples of soluble nitrocellulose, and various experimental nitrocelluloses for use in the manufacture of smokeless powder.

Chemical examination has been made of samples from 9,000 pounds of acetone, 1,000 pounds of barium nitrate, and 50 pounds of potassium nitrate.

Inspection has been made at the works of E. R. Squibb & Sons, Brooklyn, N. Y., of 102,742 pounds of ethyl alcohol and 63,000 pounds of ethyl ether, part of which was used by this station and part by E. I. Du Pont de Nemours & Co. in the manufacture of smokeless powder.

Topic VI.—Fulminate of mercury is made at this laboratory from time to time for use in detonators and exploders. Great care is taken in its preparation, and analysis has shown that it contains a minimum amount of metallic mercury and is of a quality equal if not superior to that which is manufactured abroad.

Experiments have been made in connection with the manufacture of friction primers for torpedo-launching tubes.

Topic VII.—A new and very efficient furnace has been erected for the manufacture of calcium phosphide, which is used in experiments with the Howell torpedo.

Topic VIII.—Complete chemical examination has been made of samples from five lots of Troisdorf small-arm smokeless powder, from the Winchester Repeating Arms Company and the Union Metallic Cartridge Company, and of the following foreign and commercial powders: Koln-Rottweil, W-A-108, X-3, and X-4.

Experiments have been made in order to determine the melting points and the ignition temperatures of picric acid and of compositions containing picric acid and the action of these substances on steel.

Topic IX.—Experiments have been made to determine the availability of corn-pith cellulose for use in the manufacture of smokeless powder.

One hundred and ten wooden battery cases for service use have been treated to make them moisture proof.

Topic X.—At regular intervals complete analysis has been made of samples of water from the well at the south end of Goat Island and the Newport service system.

Topic XI.—Important investigations have been made in connection with the manufacture and analysis of gun cotton. Carefully arranged experiments have indicated the most accurate methods for the determination of insoluble nitrocellulose, soluble nitrocellulose, lower nitrocellulose, alkalinity and ash in gun cotton, and the other varieties of nitrocellulose manufactured at this station.

The chemist to the torpedo station, Mr. H. F. Brown, has developed methods which are now adopted at this station as standard methods for the examinations of nitrocellulose and smokeless powder.

Topic XII.—Considerable amounts of chemical reagents have been recovered from the various analytical processes and purified for further use.

BOATS.

Tug Leyden.—The *Leyden*, after having been extensively repaired at the Portsmouth Navy-Yard, N. H., was received at this station in September, 1896, to take the place of the *Fortune*, as tender to this station and quarters for the class under instruction. The *Fortune* was towed to the Norfolk Navy-Yard in October, 1896, for extensive repairs, and it is understood that this vessel will replace the *Leyden* when the repairs are complete. The *Leyden* needs docking for the purpose of cleaning and painting the bottom, but is otherwise in excellent condition. The decks have been caulked recently, minor repairs made to her boats, and a grating has been made for the ward room hatch. The engines and boilers are in good condition.

Stiletto.—The *Stiletto* has had repairs to hatches, hatch combings, boat davits, stanchions, stem, and her small boat. She has been taken up on the ways when necessary for cleaning and overhauling, and the hull, generally, is in good condition. The deck needs calking, new leads, and a canvas cover. The machinery is in fair condition, but the boiler is not reliable. A new boiler is needed.

Wave.—The *Wave* is in use as a ferry launch. Repairs have been made to the guards, steering gear, and joiner work. Repairs of a general nature have been made to the boiler and engine. The coal bunkers, guards, and rail are in need of repairs, and the boat should be taken up on the ways shortly for cleaning and overhauling. The hull is in good condition, boiler good, and engine fair.

Billow.—The *Billow* is used as ferry and freight launch. The boat was hauled up and given a thorough overhauling in April, 1897; the house was taken off and a new boiler put in, and house replaced; guards, rails, doors, sash, fire room, and coal bunkers were repaired. All piping was fitted new. The boat has been used almost constantly for heavy freight work, and is now in need of repairs as follows: New canvas covering to house; repairs to guards, rails, and deck; and a few sheets of copper to the bottom. The engine is in fair condition and boiler good.

Other boats.—Other boats, some of them quite old, are available for use, and repairs are made as needed.

BUILDINGS.

Boathouse.—The boathouse is in need of general repairs.

Gun-cotton and smokeless-powder factories.—The gun-cotton and smokeless-powder factories need some alterations, but are in good condition, except building No. 6, destroyed by explosion.

Magazines.—The small special magazines, for storage of explosives, need repairs.

Chemical laboratory.—The chemical laboratory needs a new roof and gutters, and arrangements have been made to take this work in hand as soon as the material can be obtained.

Electrical laboratory.—The electrical laboratory is in good condition, and needs only minor repairs.

Machine shop.—The machine shop needs alterations and repairs.

Boiler house.—The boiler house needs extensive alterations and repairs, which will be made when the new boilers are installed.

Carpenter shop and paint shop.—Changes are needed in the carpenter shop and in the paint shop.

General storehouse.—The general storehouse is in good condition, but it is too small and must be enlarged to meet present requirements.

Barn.—Extensive repairs have been made to the barn, the building having been raised and a new foundation set; new floors, stalls, sills; one new door; roof partially reshingled, and new weatherboarding on the southeast end, and new jets furnished.

Rose Island buildings, velocity range, and wharf.—Little repairs are required on the buildings and velocity range at Rose Island. Extensive repairs are required on the wharf at Rose Island.

Seamen's quarters.—The seamen under instruction have been quartered, partly, in the seamen's mess room on shore. This room contains the cooking range, and is not large enough for the men to swing their hammocks comfortably. These quarters should be enlarged and more room given to the dispensary and quarters for the sick.

Officers' quarters.—Repairs are needed to the floors, sills, and steps of the piazzas of cottages occupied as quarters by the officers, and also at the inspector's quarters; the kitchen floors in general need repairing, or renewing, and doors and windows require overhauling.

MACHINERY.

Machinery, tools, etc., are in good condition, but will require some alterations and additions.

BOILERS.

The main boilers, as well as those in the different boats, and the one used with the hoisting engine, have been tested regularly every three months, and cleaned and overhauled when necessary. Two of the main boilers are old, having been installed in 1884, and difficulty is experienced at times in obtaining the steam required by the station. These boilers are to be replaced by new ones, which will be installed as soon as practicable.

FIRE AND WATER SYSTEM.

The water system and the fire mains are in good order. The steam pipes and drainpipes are generally in good order.

The fire system has been improved by the addition of a new Knowles fire pump in the same water line with the steam fire engine in the pump room.

WHARVES.

The wharves are in bad condition and need extensive repairs. The boat wharf needs many new piles, joists, and planking. Repairs are needed to the wharf at Rose Island and two new piles are needed at the Newport wharf, as well as some new planks and repairs to the landing brow.

Better accomodations are needed for the torpedo boats which come to this station for armaments, outfits, etc.

The sanitary condition of the station is good. There have been cases of infectious fevers (measles, typhoid fever) among seamen gunners and officers' families. These diseases prevailed extensively in Newport also.

Malarial disease continues to appear among the seamen gunners and crews of the torpedo boats, in nearly every instance originally contracted at Washington, D. C.

Changes in personnel since last report.

Name.	Reported.	Detached.
Lieut. J. B. Bernadon	Sept. 26, 1894	Aug. 26, 1897
Lieut. Hamilton Hutchins	July 1, 1894	July 3, 1897
Lieut. Commander W. I. Moore	Oct. 23, 1895	Dec. 21, 1896
Ensign H. J. Ziegemeier	Oct. 25, 1895	July 18, 1897
Surg. M. H. Simons	Feb. 4, 1895	Apr. 15, 1897
Commander G. A. Converse	Jan. 2, 1893	June 15, 1897
Lieut. Commander T. C. McLean	June 1, 1897	
Lieut. F. F. Fletcher	Oct. 26, 1896	
Lieut. K. Niles	Dec. 31, 1896	
Surg. C. A. Siegfried	Apr. 15, 1897	
Lieut. J. L. Jayne	June 5, 1897	
Lieut. G. R. Evans	July 3, 1897	
Pay Inspector Edward Bellows	Mar. 3, 1896	
Acting Gunner F. J. Applegate	June 8, 1895	Oct. 26, 1896
Gunner H. A. Eilers	Oct. 29, 1896	

The following officers are now attached to the torpedo station:

Lieut. Commander T. C. McLean, U. S. N.: Inspector of ordnance, in charge torpedo station.

Lieut. K. Niles, U. S. N.: General charge of grounds, wharves, boats, supervision of enlisted men, including seamen gunners under instruction, inspection duties, ordnance material, and stores received.

Lieut. F. F. Fletcher, U. S. N.: Charge of torpedo-assembling room, inspection of outfits, magazines, and manufactured explosives, instructor in torpedo work. (Absent on duty as member of Armor Board.)

Lieut. J. L. Jayne, U. S. N.: Charge of electrical laboratory, experimental electrical work, dynamo room, instruction in electricity and manufacture of fuses, detonators, and primers.

Lieut. G. R. Evans, U. S. N.: Immediate charge of the *Stiletto*, instructor in diving and instructor in torpedo work.

Pay Inspector Edward Bellows, U. S. N.: Purchasing pay officer, general storekeeper, and paymaster.

Surg. C. A. Siegfried, U. S. N.: Medical officer.

Gunner H. A. Eilers, U. S. N.: Assistant in practical torpedo work and inspector of outfits, magazines, etc.

H. F. Brown: Chemist.

Karl Hedberg: Draftsman.

Owing to the exigencies of the service, several officers attached to this station were detailed to other duties when their services were much needed here for general work, and for the instruction of classes of officers and men.

Respectfully submitted.

T. C. McLEAN,
Lieutenant-Commander, United States Navy,
Inspector of Ordnance, in charge Torpedo Station.

CHIEF OF BUREAU OF ORDNANCE,
Navy Department, Washington, D. C.

E.

ANNUAL REPORT OF THE INSPECTOR OF ORDNANCE, HARTFORD, CONN.

OFFICE OF THE INSPECTOR OF ORDNANCE,
Hartford, Conn., June 1, 1897.

SIR: In view of my early relinquishment of the duties of this office to my relief, Ensign F. H. Schofield, U. S. N., I have the honor to submit the following report on the manufacture and inspection of ordnance material in the district under my charge for the eleven months ending June 1, 1897:

The district embraces the following:

A. *American Ordnance Company, Lynn, Mass.*—Projectiles and time fuses. The inspection at the gun shops of this company, located at Bridgefort, Conn., was, until December 1, 1896, also included in this district. On that date I was relieved by Lieut. W. M. Wood, U. S. N.

B. *Winchester Repeating Arms Company, New Haven, Conn.*—Rapid-fire and small-arm ammunition of all kinds. Contractors for manufacture of Navy small arms.

C. *Union Metallic Cartridge Company, Bridgeport, Conn.*—Manufacturers of small-arm ammunition and of cartridge cases for rapid-fire guns of all calibers.

D. *Colt's Patent Fire Arms Manufacturing Company, Hartford, Conn.*—Automatic machine guns and revolvers.

E. *Bridgeport Gun Implement Company, Bridgeport, Conn.*—Cord cleaners for rifles.

F. *J. B. Chapman & Co., Springfield, Mass.*—Powder tanks.

G. *T. C. Orndorff, Worcester, Mass.*—Cartridge belts.

H. *William H. Wiley & Son, Hartford, Conn.*—Canvas leggings.

I. *Remington Arms Company, Ilion, N. Y.*—Bayonets.

K. *Ames Sword Company, Chicopee, Mass.*—Bayonet scabbards.

L. *Gatling Gun Company, Hartford, Conn.*—Gatling guns.

Civilian subinspectors and helpers have been employed as follows:

At Lynn shops of American Ordnance Co	1
At shops of Winchester Repeating Arms Co	6
At shops of Union Metallic Cartridge Co	1
At shops of J. B. Chapman & Co	1
At inspector's office	1
Total	10

The men employed in these positions are faithful and competent and have performed their work in a satisfactory manner. I would especially commend Mr. A. P. Casey and Mr. C. H. Stevenson, who have had charge, respectively, of the detail inspection and the targeting of the new navy small arms, and have shown themselves zealous and intelligent in the discharge of their duties.

In the table the several columns give the following figures:

Column I—Undelivered July 1, 1896.
Column II—Ordered during year.
Column III—Delivered during year.
Column IV—Remaining to be delivered at this date.

Under the head of "American Ordnance Company," Column IV shows the state of orders on December 1, 1896, except where otherwise specially noted.

Material.	I.	II.	III.	IV.
A.—AMERICAN ORDNANCE COMPANY.				
(a) *Guns and mounts.*				
6-pounder H. R. F. guns	24			24
6-pounder D. S. R. F. guns		25	25	
3-inch field guns	50			50
1-pounder H. R. F. guns	1	1	2	
3-inch field mounts		50		50
1-pounder top carriages	1	1	2	
1-pounder field carriages	1	1	2	
1-pounder limbers	1		1	
6-pounder Hotchkiss breechblocks	11			11
6-pounder Hotchkiss rear sights		11		11
1-pounder Hotchkiss rear sights		1	1	
6-pounder H. firing points		22	22	
6-pounder H. drill hooks		10	10	
6-pounder H. stirrups		2	2	
6-pounder D. S. firing points		14	14	
6-pounder D. S. firing pins		11	6	5
6-pounder D. S. mainsprings		32	32	
6-pounder D. S. lever locking pieces		2	2	
6-pounder D. S. finger catch pins		15	15	
6-pounder D. S. breechblock screws, sets		2		2
3-pounder H. accessory boxes		2	2	
3-pounder H. cleaning brushes		2	2	
3-pounder H. bristle sponge heads		2	2	
3-pounder H. extractors		5	5	
1-pounder H. sears		2	2	
1-pounder H. firing pins		14	2	12
1-pounder H. hammers		2	2	
37-millimeter accessory boxes, complete		1		
(b) *Ammunition.*				
3-inch fused shrapnel	10,000			10,000
6-pounder steel shell	48,000	25,000	43,000	[a]30,000

[a] On June 1, 1897.

Material.	I.	II.	III.	IV.
A.—AMERICAN ORDNANCE COMPANY—Continued.				
(b) *Ammunition*—Continued.				
1-pounder steel shell	....	90,100	100	*a* 90,000
1-pounder common shell	....	10,000	10,000	....
6-pounder common loaded rounds	....	4,523	4,523	....
1-pounder common loaded rounds	....	6,280	6,280	....
1-pounder canister rounds	....	660	600	60
1-pounder saluting rounds	....	120	....	120
1-pounder drill cartridges	....	10	....	10
B.—WINCHESTER REPEATING ARMS COMPANY.				
Lee rifles	10,000	....	8,500	1,500
Rifle slings	10,000	....	10,000	....
Rifle sights	....	10,000	8,500	1,500
Sectional rifles	....	3	3	....
5-inch cartridge cases	2,800	*b* 283	3,083	....
4-inch cartridge cases	....	2,700	....	2,700
3-inch cartridge cases	6,338	....	6,338	....
1-pounder heavy cartridge cases	....	2,500	2,500	....
6-millimeter ball cartridges, in clips	425,000	....	370,000	55,000
6-millimeter ball cartridges, loose	75,000	255,000	155,000	175,000
6-millimeter dummy cartridges, in clips	....	75,075	75,075	....
38-caliber ball cartridges	....	22,000	22,000	....
22-caliber ball cartridges	....	50,000	50,000	....
Electric primers for 4, 5, and 6 inch cases	....	1,650	1,650	....
Percussion primers for 1, 3, and 6 pounder cases	11,412	25,500	36,838	*c* 74
Short percussion primers for 1, 3, and 6 pounder cases	....	12,000	12,000	....
Percussion caps, No. 12	....	10,000	10,000	....
Percussion caps, No. 2½	....	35,000	35,000	....
6-pounder cork wads	....	100	100	....
6-millimeter ammunition gauges, set	....	1	1	....
Spare parts for Navy rifles	....	....	....	....
Front sight covers for Navy rifles	....	10,000	2,300	7,700
Percussion primers for 4, 5, and 6 inch cases	....	1,300	1,300	....
C.—UNION METALLIC CARTRIDGE COMPANY.				
(a) *For Driggs Ordnance Company.*				
6-pounder cartridge cases	8,000	....	8,000	....
(b) *Company's material.*				
5-inch cartridge cases	3,000	....	....	3,000
4-inch cartridge cases	....	2,700	....	2,700
3-inch cartridge cases	3,500	....	3,500	....
1-pounder heavy cartridge cases	....	2,500	2,500	....
6-millimeter ball cartridges, in clips	425,000	....	92,000	333,000
6-millimeter ball cartridges, loose	75,000	250,000	*d* 75,000	250,000
6-millimeter dummy cartridges, in clips	....	75,000	75,000	....
.45-caliber ball cartridges	....	25,000	25,000	....
.38-caliber ball cartridges	....	5,000	5,000	....
R. F. primers	....	25,000	25,000	....
D.—COLT'S PATENT FIRE ARMS MANUFACTURING COMPANY.				
6-millimeter automatic machine guns	50	....	50	....
Tripod mounts for automatic guns	....	50	50	....
Extra barrels for automatic guns	....	66	66	....
Spare parts for automatic guns, sets	....	50	50	....
38-caliber D. A. revolvers, model 1895	20	....	20	....
Conversion of revolvers, model 1889	....	2,145	2,145	....
Accessory sets for revolvers	....	15	15	....
Loading blocks, revolver	....	2	2	....
Cartridge packs	....	600	600	....
E.—BRIDGEPORT GUN IMPLEMENT COMPANY.				
Cleaning cords for Navy rifle	10,000	....	10,000	....
F.—J. B. CHAPMAN & CO.				
12-inch powder tanks	578	....	578	....
10-inch powder tanks	....	118	....	118
8-inch powder tanks	166	1,000	1,166	....
8-inch powder-tank covers	....	3	3	....

a On June 1, 1897.
b 150 cases manufactured for the Army Ordnance Department.
c Remainder of order canceled.
d 49,500 delivered by Winchester Repeating Arms Company.

Material.	I.	II.	III.	IV.
G.—T. C. ORNDORFF.				
Cartridge belts	10,000	....	10,000	(a)
H.—WILLIAM H. WILEY & SON.				
Canvas leggins	200	70	270	....
I.—REMINGTON ARMS COMPANY.				
Bayonets	10,000	200	10,200	....
K.—AMES SWORD COMPANY.				
Bayonet scabbards	10,200	200	10,200	....
L.—GATLING GUN COMPANY.				
Spare parts	....	....	....	....

a Inspection in charge of New York Navy-Yard.

A. *American Ordnance Company, Lynn, Mass.*—On December 1, 1896, the inspection at the Bridgeport works of this company was turned over to Lieut. W. M. Wood, U. S. N. At that time the company's new shops were practically complete and in running order, work having been begun on the orders for material required by the Bureau.

During the period between July 1 and December 1, 1896, a few small orders for rapid-fire gun parts were filled, and twenty-five Driggs-Schroeder 6-pounder guns were delivered from a stock already on hand. These, with a quantity of "target-practice ammunition" for 1-pounder and 6-pounder guns, referred to in my last report, constitute the only deliveries made by this company, excepting those from their Lynn shops.

At Lynn the manufacture of steel 6-pounder shell has steadily progressed, the estimated average production of 1,000 shell per week having been somewhat exceeded in spite of delays due to the necessity of re-treating about 2,000 shell which failed to pass the required tests on first proof. The quality of metal produced by the steel makers has improved greatly in the past year, and, which is even more important, uniformity of product has been more closely approximated. Lack of such uniformity and consequent necessity for varying the tempering and annealing processes as applied to the shell are responsible for such failures as have been noted. No lot of shell has failed to pass a satisfactory test after being re-treated.

Ten thousand 1-pounder common shell have been completed and delivered. The castings for these shell were of surprisingly good quality, rejections for porosity, sand holes, and similar defects having been very few in number. The average tensile strength of the metal in samples taken from the castings is upward of 30,000 pounds.

Failures of 1-pounder and 6-pounder shell to burst under the prescribed conditions were found to be due to a slight fault in the design of the fuse. This is fully treated in a subsequent portion of this report.

The present capacity of the shop is 1,200 6-pounders per week and about 2,000 1-pounders. As stated in my last report, this output could be materially increased in a short time by the installment of a second hydraulic press. Shell of both calibers can be turned out in these quantities at the same time.

Work on the time fuse for shrapnel during the period covered by this report has been mainly in the direction of perfecting the details and insuring uniformity of burning of the time train. As previously reported, the fuse is designed for use without a cutter, the adjustment being accomplished by turning a ring about the body of the fuse until a pointer is opposite a mark indicating the number of seconds to which the fuse is to be set. This method has not yet been fully tested under service conditions. In case it proves unsatisfactory, a cutter will be provided, attached to each fuse; the fuse will then be "set" by pulling off the cutter, which will be in the form of a bail. The adoption of either device will obviate the necessity of supplying drills or independent cutters of any form, and each fuse will be complete in itself.

The proving ground of this company has been located near Riverside, Mass., for several years, but it has recently become necessary to abandon this range, and a new one will be fitted up near Lynn. In the interim tests of shell and fuses are being made at the Bureau's proving ground at Indian Head, Md.

B. *Winchester Repeating Arms Company, New Haven, Conn.*—Aside from work on the small-arm and ammunition contracts, which is fully treated under the respective titles of "Small arms" and "Ammunition," this company's work for the Navy has been confined to the completion of old orders for large caliber cartridge cases and the filling of a few small miscellaneous orders.

The 3-inch cases, the completion of which was so long delayed by the lack of facilities at the Naval Proving Ground for testing them, have all been finished and delivered. These cases are primed with the new percussion primer designed for use with the smokeless powder.

In my last annual report reference was made to certain failures of electric primers that had occurred in testing 5-inch cartridge cases at the proving ground. The expedient suggested of using powder bags with serge bottoms was adopted by the Bureau, but, while fewer failures of the primers to ignite the charge were met with, the difficulty was not entirely removed. Continued experiments at Indian Head and at New Haven led to the conclusion that the true remedy lay in increasing the violence of the explosion of the primer by confining its powder charge more closely. To this end two expedients were resorted to, viz, using a wad of thin lead in place of the pasteboard wad then employed, drawing the primer body longer and crimping the open end over the wad so far as to leave an aperture only about three-sixteenths of an inch in diameter. Both these methods proved efficient, but it was not thought advisable to use the lead wad, owing to the possibility of its lodging in the chamber of the gun and thus causing a jam in subsequent loading. It was consequently decided to use the heavy crimp, and all primers made in future will be of this design.

To utilize the primers already on hand, which had been manufactured for use with the 5-inch cases, they were all given as much additional crimp as the amount of metal in the body would allow, after which they were exhaustively tested and found to function properly. A quantity of primers on hand at the Norfolk and New York navy-yards have been returned to the works, recrimped, and shipped back for issue to the service.

A report was recently received from the proving ground of the failure of one of the new style of primers to ignite with the service-battery current. This primer was tested at Newport and found to have a resistance of 1.17 ohms. A service battery, if in perfect condition, should fire a primer of a resistance considerably greater than this, but it is thought desirable that the resistance should not exceed 1 ohm, and that limit has accordingly been established. To test all primers more thoroughly before they leave the manufacturers' hands, a service-firing battery has been obtained, and a maximum and minimum resistance measuring apparatus has been prepared. All primers will in future be tested for resistance, none being accepted whose resistance exceeds 1 ohm or falls below 0.6 ohm. A certain percentage will also be fired with the service battery. By these means failures of primers in service will be reduced to a minimum, and will, it is hoped, be absolutely prevented.

The order for 5-inch cases was completed in October, 1896, after which a small number remaining on hand were purchased by the Bureau. One hundred and fifty cases were also inspected for the Ordnance Department of the Army. These differed from those furnished for the Navy only in being a fraction of an inch longer.

C. *Union Metallic Cartridge Company, Bridgeport, Conn.*—Eight thousand 6-pounder cartridge cases, manufactured under contract with the Driggs Ordnance Company, were delivered early in the year, and 2,500 1-pounder cases were furnished for the Bureau. Aside from these, no minor-caliber rapid-fire ammunition has been made during the period covered by this report.

The Bureau's order for 3-inch cartridge cases has been filled, and work is now progressing on the 5-inch cases. When the company took the order for these cases they had no appliance for their manufacture and no experience in the drawing of cases larger than 6-pounders. Since that time they have installed a drawbench and heading press capable of handling cases of the largest caliber.

Several hundred 5-inch cases have been turned out, which in appearance and under close-gauge inspection are equal to the best heretofore supplied to the Bureau. None have as yet been proof-fired.

This company is now turning out 6-millimeter ammunition of the most satisfactory quality, and frequent deliveries are being made. Difficulty was experienced for some time in producing a satisfactory clip, but those now made are practically perfect, the pack being absolutely rigid and no sticking in the gun being noticed.

D. *Colts Patent Fire Arms Manufacturing Company, Hartford, Conn.*—The work of altering model 1889 revolvers to the 1895 model has been prosecuted continuously throughout the current year, the total number converted up to the present date being 3,183; the total cost of this work, including the value of spare parts and accessories furnished with the converted revolvers, has been slightly less than $21,000, or an average of somewhat less than $7 for each revolver.

The automatic machine guns, 50 in number, ordered by the Bureau in February, 1896, have been completed and delivered. A considerable delay was met with when the first of these guns were presented for test, owing to the difficulties that the ammunition manufacturers were at that time experiencing in turning out satisfactory cartridges. This obstacle having been surmounted, the completion of the guns was rapidly accomplished, though none were shipped from the works until certain defects, which developed in the course of the tests, were remedied. No radical alteration in the gun was found necessary, but several slight modifications in mechanical details and in the shape of small parts were made to the material improvement of the gun.

Two or three further modifications are in mind which would be applied to any guns made in future, and would, it is thought, add still more to their excellence and efficiency.

A course of exhaustive experiments was made with a view to determining the life of a gun of this type. With 135-grain steel-jacketed bullets, the life of a barrel was less than 3,000 rounds, while with the new standard bullet, 112 grains in weight and having a jacket of tinned copper, the endurance reached nearly 10,000 rounds.

With each gun was issued a spare barrel, which can be readily fitted to the gun on board ship, thus giving a life of 20,000 rounds. No limit to the endurance of the mechanism has been reached, though upward of 20,000 rounds have been fired from one gun, the only part which failed to go through the complete test being the firing pin, the point of which was scored by gas escaping through pierced primers.

A light and strong tripod mount is furnished with each gun, with a leather boot containing spare parts and accessories attached to one of the legs in a compact manner.

The company have also devised a light field carriage, upon which the gun and 2,000 rounds of ammunition may be carried on a total weight of less than 350 pounds. One or two men would thus be able to transport the gun and ammunition with ease over any distance and any kind of ground.

E. *Bridgeport Gun Implement Company, Bridgeport, Conn.*—The cleaning cords for the navy rifle ordered from this company were completed and delivered. So far as known they have given entire satisfaction.

F. *J. B. Chapman & Co., Springfield, Mass.*—All the powder tanks called for by the Bureau's order of December, 1894, were delivered early in the year. An order for 1,000 8-inch tanks, placed in January, has been completed, and work is now under way on a quantity of 10-inch tanks ordered at the same time. The work on these tanks has been of excellent quality, and the number of rejected tanks very small.

It is again respectfully recommended that the limit of weight of the 10-inch tank be increased so that a heavier gauge of copper could be used in the body, as this tank is somewhat deficient in stiffness.

G. *T. C. Orndorff, Worcester, Mass.*—The new cartridge belts for issue with the new rifle were completed and delivered at the New York Navy-Yard, where they were inspected.

H. *William H. Wiley & Son, Hartford, Conn.*—A few small orders for leggins for the Naval Militia were filled during the year.

I. *Remington Arms Company, Ilion, N. Y.*—Ten thousand knife bayonets ordered from this company in April, 1896, were completed in January of the present year. A further small order has been filled to furnish a reserve supply.

K. *Ames Sword Company, Chicopee, Mass.*—Scabbards for the new bayonets were furnished by this company; the design was prepared by the Winchester Repeating Arms Company on lines laid down by the Bureau. The scabbard adopted is of leather and steel, being attached by a frog to a hanger on the cartridge belt. Leather of the best quality was used in their manufacture and they should prove durable and satisfactory in service.

L. *Gatling Gun Company, Hartford, Conn.*—This company have furnished a few parts and accessories for Gatling guns to replace those lost or broken in service.

The company has recently been reorganized and has passed under the same management as the Colt's Patent Fire Arms Manufacturing Company, who have made all the Gatling guns now in the Government service under contract with the old Gatling Gun Company.

MACHINE GUNS.

The machine-gun field, so far as concerns the Navy, has been cleared of crank-operated guns, and the automatic has proven itself not only a possibility, but and accomplished fact.

The Colt gun, of which the Bureau purchased 50, has been fully treated in a previous part of this report. The Maxim and Hotchkiss guns were tested at various times by the Machine Gun Board, and the latter proved entirely unsatisfactory, though its failure was not shown to be due so much to faulty principle as to imperfect mechanical construction. Though some of its features are objectionable, they might not stand in the way of its development into an efficient weapon.

The Maxim gun in its later type shows an abandonment of the recoil principle and an entire dependence on the gas escape for operating power. It is thus precisely like the Colt gun in principle, though the application is somewhat different and the mechanical devices by which the necessary operations are performed are not similar in the two guns.

The Maxim gun has not yet passed a satisfactory test, though the causes of the gun breaking down have been claimed in each case to be purely due to easily remedied faults of construction.

SMALL ARMS.

After the adoption of the Lee straight-pull rifle for the naval service and the conclusion of a contract with the Winchester Repeating Arms Company, on October 31, 1895, for the manufacture of 10,000 guns of that type, the construction of a model gun was entered upon. This model embraced such modifications and improvements over the original gun as suggested themselves in the limited time available for its construction. It was completed and tested in January, 1896, after which date work on tools and fixtures was pushed as rapidly as possible, stock was ordered, and manufacture begun.

Owing to various causes, for which the contractors were not at fault, it was impracticable to deliver the first lot of rifles within the contract time, and an extension of forty-five days was granted. At the end of this time the first delivery was made, and the rifles have been supplied regularly since that time at the rate of about fifty per day, with the exception of a period of about three weeks, when certain changes ordered by the Bureau were being made. At the present time 8,500 guns have been delivered, and the contract will be completed about July 1.

The steel used in the manufacture of barrels, receivers, and all parts of these rifles is tested by the Bureau's inspectors at the steel works, and all parts are subjected to rigid inspection in process of manufacture and before being assembled in the completed arms. After assembling, each gun is targeted by firing three shots at 50 yards range; any gun not showing the required accuracy of grouping and location of groups in this test is sent back to the shops for adjustment. The result of this close inspection and test is shown in the exceptionally good targets made by all guns accepted.

In a few cases it has been found necessary to restock guns to secure good results at the target, but generally a slight raising or lowering of the front sight or a lateral displacement of the rear sight leaf has served to correct the errors of shooting.

The details of the rear sight were finally fixed and the markings for all ranges up to 2,000 yards determined by actual firing in August, 1896, and the Winchester Company pushed the work on the sights so rapidly that only a slight delay in delivery of rifles was caused.

Owing to the necessity of supplying the service with rifles as soon as practicable, the question of drift was not as thoroughly investigated as it would have been had more time been allowed. The amount of drift for all ranges at which the gun is likely to be used was determined with sufficient accuracy for practical purposes, and due allowance was made in the construction of the sight. The experience of the Army Ordnance Department with the sight for the Army rifles and such experiments as have been made with the Navy gun have demonstrated the necessity of a long course of firing, under uniform conditions of weather, for an accurate determination of the amount of drift at all ranges.

The extreme height of the front sight and its liability to injury led to the adoption of a cover which should remain permanently on the barrel and allow of aiming through it. A light steel cover was decided on, and this, when browned and placed in position over the sight, rather adds to the neat appearance of the arm than detracts from it.

About 2,500 of these sight covers have been delivered, and the remainder of the 10,000 will be completed before the expiration of the contract time for the delivery of rifles. All other equipments are completed and delivered to the Government.

Familiarity and experience with the Navy rifle in the course of manufacture have demonstrated the possibility of making certain improvements in some parts of the mechanism and of dispensing with some of the parts. The ideas of the Winchester Company are being embodied in a new model gun, and in case the Bureau should, in the near future, decide to purchase more rifles, careful consideration of the new model is earnestly recommended.

AMMUNITION.

(a) *Rapid-fire.*—The installation by the Union Metallic Cartridge Company of a plant for the manufacture of large-caliber cartridge cases has placed at the disposition of the Government two establishments capable of producing cartridge cases of all sizes from 6-millimeter to 6-inch. The capacity of the two plants is about equal, and may be placed at about 50 large-caliber cases per day.

Steel 6-pounder shell have been supplied at the rate of about 1,000 per week, by the American Ordnance Company, and an order for 10,000 1-pounder cast-iron shell was also filled.

Reference was made in the last report from this office to a difficulty in bursting steel 6-pounder shell with the base fuses used. The frequent recurrence of the failures to burst led to a thorough investigation of the causes and to a modification of the design of the fuse. The addition of a number of threads to the fuse body and thickening of the base have accomplished the desired end, and the fuses are now found to work satisfactorily.

(b) *Small arm.*—The Bureau's order for 1,000,000 rounds of 6-millimeter ammunition, placed in April, 1896, has been nearly filled, and the companies are ready to proceed on the latest order for 500,000 rounds for machine guns.

Delay in beginning the delivery of these cartridges was due to the failure of the powder manufacturers to deliver the powder required; numerous brief interruptions to the work were caused by mishaps and by changes ordered by the Bureau. Some difficulty was also experienced in turning out satisfactory clips in the requisite quantities. At present the work is proceeding smoothly and rapidly.

The only change made in the cartridge since last year is the substitution of a bullet of 112 grains weight and having a tinned copper jacket for the 135-grain steel-jacketed bullet at first employed. This change was made for the sole purpose of extending the life of the gun barrels; incidentally the reduction of pressure has lessened the difficulty of manufacture, though perfect ammunition with the heavier bullet was furnished. A series of exhaustive experiments has proven that, whereas with the 135 grain bullet having a cupro-nickeled steel jacket the life of a barrel was less than 3,000 rounds, with the light bullet jacketed with copper the life is practically 10,000 rounds. Other jacket materials were tried, and also cores of different degrees of hardness; none compared in efficiency with the bullet adopted, having a core of lead and antimony in the proportions of 95 to 5, and a jacket of copper, plated with tin, to prevent corrosion.

With the new bullet a velocity of 2,550 feet per second is attained, the corresponding chamber pressure averaging 43,000 pounds. The penetration in pine boards at 5 feet from the muzzle is practically the same as that of the heavy bullet, averaging about 56 inches. It easily penetrates a half inch of low steel at 10 feet from the muzzle.

A comparison of the trajectories of the light bullet with an initial velocity of 2,550 foot-seconds, and of the heavy bullet with 2,450 foot-seconds velocity shows the former to be materially flatter for ranges below 500 yards. For that range the maximum heights of the two trajectories are practically equal, and for 1,000 yards range the difference in maximum height is about 3 feet in favor of the heavy bullet.

The targets made by the two bullets at ranges up to 1,000 yards do not show any material differences.

Whether anything has been lost in "stopping effect" by the reduction in weight can hardly be determined on theoretical grounds, but there would seem to be enough vim in the light bullet, with its tremendous velocity, to do good execution at ordinary ranges.

A cartridge has been devised which embraces the requirements of "riot ammunition" and "gallery-practice ammunition." The standard cartridge case is used, but the bullet is of 90 grains weight and is "soft-pointed," i. e., the jacket (of tinned copper) is put on from the base instead of from the point as in standard bullets. The result is that when fired against a thin steel plate at short range with a velocity of about 1,000 foot-seconds the bullet does not penetrate, but mushrooms against the plate. A charge of 10 grains of rifle or revolver powder (nitro) gives the required velocity to insure reasonable accuracy at a range of 200 yards.

This cartridge is serviceable only in the small arm, the attempt to adapt it to the automatic machine gun without unduly increasing the range and penetration of the bullet having been unsuccessful.

It is feared that the expense of this ammunition may preclude its use to any great extent for gallery practice, nor will it be possible to produce a cheap cartridge for that purpose, as a large portion of the cost of 6-millimeter ammunition is due to the cartridge case itself. Unless a thinner case be made, the cost can not be reduced materially. Experimental work is now being done with a view to producing, if possible, a cartridge with a special case and an unjacketed bullet which can be furnished to the Government at a low price.

The blank cartridge adopted has a bullet of paper charged with black powder; the charge in the cartridge is of nitropowder, being just sufficient in weight to drive the paper bullet from the gun. The bullet charge, igniting, rends the bullet into fragments at the muzzle, and disperses them so that none of them can inflict a wound at a greater distance than 15 feet from the muzzle.

GENERAL.

The total value of ordnance material inspected and delivered in this district during the period covered by this report is as follows:

Value of material delivered, July 1, 1896, to June 1, 1897.

American Ordnance Company	$142, 234. 61
Winchester Repeating Arms Company	223, 865. 78
Driggs Ordnance Company	7, 680. 00
Union Metallic Cartridge Company	10, 323. 45
Colt's Patent Fire Arms Manufacturing Company	44, 859. 69
Bridgeport Gun Implement Company	1, 300. 00
J. B. Chapman & Co	24, 064. 23
William H. Wiley & Son	202. 50
Remington Arms Company	16, 320. 00
Ames Sword Company	6, 120. 00
Gatling Gun Company	42. 23
Total	477, 012. 49

To this sum should be added $1,411.87 paid for transportation of material delivered f. o. b. works, making a total of $478,424.36.

The cost of conducting the inspection has been $9,327.03, including pay of inspector and subinspectors, mileage, stationery, and miscellaneous charges. The percentage cost is therefore approximately 1.9 per cent.

Respectfully submitted.

N. C. TWINING,
Ensign, United States Navy, Inspector of Ordnance.

The CHIEF OF BUREAU OF ORDNANCE,
Navy Department, Washington, D. C.

E 2.

SUPPLEMENTARY REPORT OF THE INSPECTOR OF ORDNANCE, HARTFORD, CONN.

OFFICE OF INSPECTOR OF ORDNANCE,
Hartford, Conn., July 1, 1897.

SIR: I have the honor to submit the following report, supplementary to a report forwarded by Ensign N. C. Twining, U. S. N., June 1, 1897.

Ensign N. C. Twining was detached from duty as inspector of ordnance at Hartford, Conn., on June 14, on which date I assumed the duties of inspector.

In the following table only those items are mentioned which have been ordered or delivered since June 1, 1897. The nomenclature of the columns in the report before mentioned is retained, namely, Column I, undelivered July 1, 1896; Column II, ordered during the year; Column III, delivered during the year; Column IV, remaining to be delivered at this date.

The summary of cost of material delivered during the year is complete to July 1, 1897.

Material.	I.	II.	III.	IV.
A.—AMERICAN ORDNANCE COMPANY.				
6-pounder steel shell	48,000	25,000	48,000	25,000
1-pounder steel shell	....	90,100	160	89,940
1-pounder common shell	....	10,500	10,500	....
B.—WINCHESTER REPEATING ARMS COMPANY.				
Lee rifles	10,000	....	10,000	....
Lee-rifle sights	....	10,000	10,000	....
Front-sight covers for navy rifles	....	10,000	10,000	....
4-inch cartridge cases	....	2,700	400	2,300
6-millimeter ball cartridges, loose	75,000	255,000	204,500	125,500
6-millimeter blank cartridges, in clips	....	100,000	....	....
6-pounder cartridge cases	....	10,000	....	....
Changes on Lee straight-pull rifles	....	10,000	10,000	....
C.—UNION METALLIC CARTRIDGE COMPANY.				
5-inch cartridge cases	3,000	....	600	2,400
6-millimeter ball cartridges, loose	75,000	250,000	235,000	90,000
6-millimeter blank cartridges, in clips	....	100,000	....	....
6-pounder cartridge cases	....	10,000	....	....
D.—COLT'S PATENT FIRE ARMS MANUFACTURING COMPANY.				
.38-caliber D. A. revolvers, model 1895	....	7	7	....
Alteration on automatic guns	....	50	50	....
Model carriage and mount for automatic gun	....	1	....	....
F.—J. B. CHAPMAN & CO.				
10-inch powder tanks	....	118	118	....
H.—WILLIAM H. WILEY & SON.				
Canvas leggings	200	120	320	....

Value of material delivered July 1, 1896, to July 1, 1897.

American Ordnance Company	$152,070.01
Winchester Repeating Arms Company	265,888.76
Driggs Ordnance Company	7,680.00
Union Metallic Cartridge Company	20,243.45
Colt's Patent Fire Arms Manufacturing Company	45,195.89
Bridgeport Gun Implement Company	1,300.00
J. B. Chapman & Co	25,650.15
William H. Wiley & Son	240.00
Remington Arms Company	16,320.00
Ames Sword Company	6,120.00
Gatling Gun Company	42.23
Total	540,750.49

To this sum should be added $1,529.68 paid for transportation of material delivered f. o. b. works, making a total of $542,280.17.

The cost of conducting the inspection has been $10,269.30, including pay of inspector and subinspectors, mileage, stationery, and miscellaneous charges. The percentage cost is approximately 1.9.

Respectfully submitted.

FRANK H. SCHOFIELD,
Ensign, United States Navy, Inspector of Ordnance.

F.

ANNUAL REPORT OF THE NAVAL PROVING GROUND AT INDIAN HEAD, MD.

NAVAL PROVING GROUND,
Indian Head, Md., September 10, 1897.

SIR: I have the honor to submit the annual report for the Naval Proving Ground.

The legitimate purposes of the proving ground have been constantly in view, and this report will touch only on those matters and such others as are intimately connected with the proper prosecution of the work.

Armor plates and armor-piercing projectiles have been proved during the year, and the accompanying tables give a brief résumé of the results obtained. No piece of armor has failed to pass the required test, and in every instance the plate has been of very superior quality, and noticeably an improvement on the earlier plates. This is gratifying evidence of the capacity of the armor plants, and it is much to their credit that the material is far and away better than what would merely pass. It is also a clear indication that the makers are anxious to furnish the best product possible and that their intelligent efforts are constantly giving greater toughness and increased ballistic resistance. No plate tried here this year has shown the slightest tendency to shatter or crack under its prescribed test, the fractures about the shot holes have always shown metal of the finest quality, the hardening has been uniform in depth and hardness, and it can be confidently stated that we are getting a uniform and very high grade of armor for the ships now building, comparing most favorably with any armor tried abroad of which we find published accounts or have knowledge.

Armor-piercing projectiles for calibers of 6 inches and above have been tested during the year as supplied under contract. There has been noteworthy improvement in this material and with each new contract the tests have been made more severe. While the results of tests are not always satisfactory, there are very few failures, and a second treatment of a lot with the information gained from the failing projectile, is always successful in producing the happy mean of hardness and toughness necessary. The makers are able to meet the requirements and to supply the projectiles promptly in large numbers, and the plants of the three supplying firms could be rapidly extended. The table giving firing tests of plates shows the results of testing projectiles also.

Semiarmor-piercing projectiles.—Several lots of these projectiles have been tested and accepted during the year. They will pierce several inches of armor and carry the shell effect into all classes of light-armored cruisers. The results of tests are shown in the table.

Thirty-nine thousand 6-pounder armor-piercing projectiles have been tested during the year under contract. Of these, three lots failed to pass the required tests and they were satisfactory after retreatment. In addition, some experimental projectiles have been tested for the contractors, as a test of the steel to be used in further manufacture. The manufacturers have attained such skill in the production of secondary battery projectiles that large quantities can be turned out promptly.

But one lot of 1-pounder projectiles has been tested during the year; they were of excellent quality. The present contractors for 1-pounder projectiles have their own testing ground for material of this caliber.

Tests of brown prismatic powder for current-service use have been carried on during the year. Three lots of powder for 13-inch B. L. Rs., made on the Pacific Coast, were tested and accepted, as was one lot made on this coast. These supplied the needs for the year for this caliber. For the 12-inch B. L. Rs., two lots were accepted from the California Powder Works and two from Eastern makers. For 10-inch B. L. Rs., four similar lots were accepted from the two sources of supply. But two lots of powder for 8-inch B. L. Rs. were required. They were tested and accepted. For 6, 5, and 4-inch guns but few lots of brown powder were tested, smokeless powder being rapidly introduced for these calibers.

Black powders were accepted for 6-pounders and 1-pounders in considerable quantities, the manufacture of smokeless powder not yet being equal to the demand. Shell powder to the amount of 50,000 pounds and two lots of black ignition powder have been tested during the year.

Retest of ammunition returned from vessels for that purpose.—Two lots of 6-pounder ammunition (black powder) from the *Philadelphia* gave good results; the pressures and velocities were a little higher than when originally tested. The powder was in good physical condition, having same appearance as new powder, and the projectiles burst well.

The *Cincinnati's* returned 5-inch fixed ammunition was found to be in excellent condition in every way, and gave entirely satisfactory results when fired. Her 6-inch B. L. R. powder charges, put up in 1894, gave same results as on original test.

Five-inch fixed ammunition from the *Detroit* gave somewhat higher pressures and velocities than in original test of the powder. These pressures were not excessive or dangerous. The 6-pounder ammunition from the same vessel was found to be in satisfactory condition, but the 1-pounder ammunition was poor, giving low velocities and pressures. The powder was caked, and it was recommended that this lot be condemned and turned into store.

Smokeless powder.—The manufacture of a satisfactory smokeless powder has been established, and samples have been tested for all calibers, and the powder is now being regularly supplied for all guns up to and including the 6-inch. The credit of working out the processes for producing regular and satisfactory results is due to the officers of the torpedo station, where several have devoted themselves with great zeal, intelligence, and success to the question of producing a safe, good-keeping, and reliable powder. Powder for the 13-inch B. L. Rs. was tested in February, 1896, and samples still on hand in the magazine have undergone no change so far as can be judged. The results in all cases are higher velocities with lower maximum pressures than with brown powder, and, coupled with the absence of obscuring smoke, it may be said that the offensive power of every vessel in the Navy will be very sensibly increased by the prompt introduction of these powders. We may congratulate ourselves that we were not led by the apparent difficulties of the situation to adopt the very dangerous nitroglycerin powders that have been very generally adopted in other navies. Our own experience with such powders showed their very dangerous lack of keeping qualities. Full reports on the different tests of smokeless powder have been made to the Bureau in each case.

Test of high explosives.—Tests and experiments with the Gathmann projectile, designed to carry very large charges of gun cotton, were commenced in February and have continued to this time and are not yet completed. The essential feature of the projectile is the attempt to use a very thin wall, giving great powder space, by equalizing the pressure on the inner and outer surface of the shell. This is done by making the caliber of the projectile considerably less than that of the gun except at the head where the rifling band is placed; this permits the powder pressure free access to the outer walls of the projectiles, while a movable piston in the rear transmits the same pressure to the interior walls, the charge being wet gun cotton. For the trials a 13-inch B. L. R. tube was bored out to 12 inches, fitted with breech mechanism and chambered to suit the projectiles, the rifling being cut away for a considerable distance. The first projectiles tried had walls one-quarter inch in thickness, and were loaded with inert material. These would not stand, three bursting near the muzzle and in two cases before leaving the gun, as evidenced by slight scoring. The pressures were low, not reaching 6 tons in any case. The thickness of wall was increased to one-half inch, and these projectiles stood a pressure of 8 tons and reached a velocity of 1,686 foot-seconds. On June 9, one of the later form of projectiles was loaded with 307 pounds of wet gun cotton, fused and fired from the experimental gun by electricity. The firing of the gun powder and the explosion of the shell and gun were apparently simultaneous. The gun was completely wrecked, pieces were thrown more than a mile in various directions. Fortunately, no one was injured, nor was there any serious damage beyond the gun and carriage. Recently some experiments have been made, using an 8-inch M. L. R. Gun cotton loaded projectiles have been fired with fuses and without accident with pressures of about 6.5 tons, and empty shells, fused, have also been fired safely. One projectile, containing 47 pounds wet gun cotton and 8 ounces dry, with a fulminate primer, was fired on the date of this report. The shell was not exploded, probably because there was not sufficient communication between the gun cotton in the fuse and the main charge. A safety device, intended to prevent the ignition of the gun cotton if the fulminate is prematurely exploded, has worked satisfactorily in these experiments.

Experiments to determine the effect of the explosion of large charges of wet gun cotton.—Two steel plates, 13 feet by 7 feet by ⅝ inch, were set vertically on the beach, parallel to each other and securely braced, and 50 feet apart. The plates were slightly curved and the curved sides were toward each other. A Gathman projectile, loaded with wet gun cotton, about 340 pounds, was placed on the beach between the plates, 35 feet from one and 15 feet from the other, and was fired by electricity. The plates were uninjured, not displaced; no effect of any sort was produced on them. The explosion was of high order and locally severe, very small fragments of the shell were found in the vicinity. (See N. P. G. letter No. 308.) A Gathman projectile of the same size was loaded with 220.25 pounds of shell powder and fired in the same position between the plates. The results were practically the same as with the gun cotton. There were rather larger holes made in the ground. Neither plate was injured, nor was any useful effect produced on them. A Gathman projectile, loaded with 307 pounds of wet gun cotton, was hung against the face of a heavy armor standing vertically against a target structure. The plate was 7.5 by 16 feet, and from 16.5 to 9.5 inches thick; weight, 28 tons. Wooden blocks supported the shell against the middle portion of the plate and against it, the whole length of the shell bearing against the plate horizontally. The plate had received two test shots for acceptance before this experiment. The shell was fired by electricity and an explosion of the first class resulted. The damage to the plate was nil, the face of the plate was fused and burned over a space 5 feet 10 inches by 8 inches, with a maximum depth of ⅝ inch. The side of the shell next the armor plate was flattened out and burned into a ragged sheet 5 feet 7 inches by 8 inches. A chicken tied on the ground immediately in rear of the plate was uninjured; one placed in a cofferdam 50 feet from plate and in front was uninjured; one placed in a cofferdam 25 feet from plate and in front was killed; one placed on the ground 43 feet in front of the plate and unprotected was scorched and struck by flying fragments. (See N. P. G. letter No. 386.)

Test of Rand explosive on March 12, in shells in explosion chamber.—A 4-inch wrought steel common shell was loaded with 3 pounds 12.5 ounces of the explosive and fired by electricity in a shed fitted up for the purpose. The explosion was very violent and the shed badly wrecked. For comparison with similar tests with other explosives see photographs N. P. G., Nos. 608 and 609, and photographs Nos. 363 and 363a with N. P. G. letter No. 68 of January 23, 1895. A second test was made, using a 4-inch A. P. projectile; this took a charge of Randite of 6.7 ounces, and was exploded with a service single-wire electric primer. The explosion was violent, prompt, and the projectile broken into many fragments. The explosive seemed very mild and inert when burned in the open air—in fact, difficult to burn—and also very insensitive to shock. No further experiments have been made.

Joveite, as a charge for armor-piercing projectiles, has been tested at various times during the year with satisfactory results. Some failures were recorded in the early trials, detailed in the last annual report, due to an insufficient igniting charge of black powder in the fuse. Three 6-inch A. P. projectiles were fired through a half-inch steel plate with excellent bursts and break-ups. Two 6-inch A. P. were loaded with Joveite on November 24, kept in the magazine until May 6, and then tested with most excellent results, using high pressures and a velocity over 2,000 foot-seconds, and a steel plate one and a half inches thick. A 6-inch A. P. projectile was fired with a velocity of 1,860 foot-seconds at a cofferdam protected by a 4-inch nickel-steel face-hardened plate at a point where the cellulose was 4 feet 8 inches thick. The projectile passed through and exploded about 3 feet in rear of the cofferdam. A similarly loaded 6-inch A. P. projectile was fired at a cofferdam having a 5.5-inch nickel-steel face-hardened plate on the outside. The shell broke up after passing through the cofferdam, but did not explode. The fuse was recovered, and it evidently had failed to ignite the Joveite, some of which was in the fuse stock. Portions of the charge of Joveite were also found scattered about. A 10-inch A. P. projectile loaded with 8.75 pounds of Joveite was fired through a 4-inch steel plate on August 28. The explosion took place immediately in the rear of the plate, as was determined by marks of fragments of the projectile in the structure supporting the plate. The results were observed from the launch in the river. The break-up of the projectile was excellent, many pieces scattering along the shore and the surface of the river for a quarter of a mile. The largest fragment found weighed not more than 3 pounds. (See N. P G. letter No. 406.)

The Joveite came here in the form of a sand or powder, very much like old-fashioned brown sugar. It is reduced by heat to a pasty state, rammed into a mold, allowed to cool and harden when it may be handled without breaking up. The core thus formed is placed in the shell and the base plug screwed home. It is believed that Joveite will bear transportation in the core form, and thus reach the loading magazine in condition for immediate use.

Picric acid.—Two 6-inch A. P. projectiles, each loaded with about 2 pounds of picric acid, were fired through a steel plate 1½ inches thick. They functioned well, gave prompt explosions, and broke up the projectiles well. (See N. P. G. letter No. 276.)

Two cofferdams, filled with corn cellulose and protected with nickel-steel, face-hardened armor plates, were tested June 11. One protected by a 4-inch armor plate was attacked with a 6-inch A. P. empty projectile having a velocity of 1,895 foot-seconds. The projectile passed through the armor plate and the cofferdam at a point where the cellulose was 2 feet 10 inches thick. Very little cellulose was carried out—not more than a handful. A second round was fired at this cofferdam, with a velocity of 1,860 foot-seconds, using a 6-inch A. P. projectile, loaded with about 2 pounds of Joveite, which did not, however, explode until after passing entirely through the cofferdam. This projectile went through where the cellulose was 4 feet 8 inches thick. The rear plate of the cofferdam was badly torn, a hole (roughly) 9.5 feet by 16 inches being made. After these rounds the water pocket was filled with water, and water appeared at the hole made by the first shot in 4.5 minutes, and at the other hole in 7 minutes. Through the first hole 12 gallons ran in 5 minutes; the same amount of water ran through the second and larger hole, where the cellulose was, however, thicker, in 20 minutes. The second 12 gallons from each hole was slower, and then the flow practically ceased, the cellulose swelling sufficiently to stop them. The cofferdam having a 5.5-inch plate was attacked first with a 10-inch A. P. projectile, loaded with shell powder, using a velocity of 1,682 foot-seconds. The shell did not explode until after passing entirely through the cofferdam, but it nevertheless wrecked the dam, bursting out the nearest end and breaking joints so that it could not hold water. A second round was fired, using a 6-inch A. P. projectile, loaded with joveite. As this shell failed to explode in the dam, nothing was learned from the round regarding cofferdams. (See N. P. G., letter No. 368.)

Maxim semiautomatic 6-pounder.—The test of this gun has not been completed. It is contemplated to fire a total of 1,000 rounds before making a final report on it. But 129 rounds have been fired, some of them at targets in competition for time and accuracy with the Hotchkiss and Driggs-Schroeder 6-pounders. These comparative tests will be continued. So far as they have gone the indications are that there is no marked advantage in the semiautomatic principle as applied to this gun. There is, however, a gain of one man in the crew, which possibly more than compensates for the additional weight of gun and complexity of parts. It would be unwise to come to a final decision regarding the merits of the gun on the incomplete data at hand.

The Maxim automatic 1-pounder has been tested with 477 rounds. It has the faults and the merits of other automatic guns.

The Navy small arm has been fired over the range to test the drift. The circumstances under which the firing was done made the results of only moderate value. The gun worked satisfactorily in every way.

The tests of great guns and carriages have continued during the year. The following guns have been proof-fired: Five 12-inch B. L. Rs., seventy-six rounds; five 8-inch B. L. Rs.; seven 6-inch R. F. guns (of these two were converted from B. L. Rs.); fourteen 5-inch R. F. guns; fifty-two R. F. guns; thirty-six 3-inch field guns.

No gun showed any sign of weakness. Some parts of the breech mechanism were found to be too light in the early tests of the year. After strengthening no further weakness was manifested. In testing powders some very high pressures are occasionally obtained. One

4-inch R. F. had several rounds above 20 tons and one round of 27 tons. This did not show any result in the gauging after proof.

The 3-inch field guns have begun to pass into the service and have been ranged. Some difficulty was experienced in No. 1 gun in fixing the ports of the recoil piston. After a second charge the dimensions were fixed from experiment and have given no further trouble. Experiments were made to determine the pull of the gun on recoil, as on the fastenings in a boat. The result of many firings gave about 14 tons, indicating that the gun should only be fired from a very heavily built boat or one specially adapted and fitted for the purpose.

Cartridge cases for rapid-fire guns.—Twenty-seven lots of 5-inch R. F. and the same number of 4-inch R. F. cases have been tested and accepted during the year. The contracts have not yet been completed. One lot of 3-inch field-gun cases has been tested and accepted. During the current work of the station cartridge cases are in constant use. We find that cases above 6-pounder in caliber may be used from ten to twenty times without reforming. It is believed that after one reforming they are liable to give way rapidly and require reforming after a very few rounds. There is not, however, any data of much value on this matter.

Some time fuses, designed by Dr. Woodbridge, were tested, but gave very unsatisfactory results. Some of these are still on hand, and the trials will be continued until they are exhausted. The laboratory tests of these fuses are said to have been excellent; but it is impossible to produce the conditions of service in a laboratory test. Time fuses designed and supplied by the American Ordnance Company have been tested. They gave fair results, and the difficulties encountered were of such a nature as to be easily remedied. The experiments with these fuses have been continued under the supervision of the inspector of ordnance at Lynn, Mass., whose report on the matter will probably show that a fairly satisfactory fuse for shrapnel has been obtained.

The facilities for work at the station have been greatly improved by fitting electrical power to the traveling crane and the relaying of all the railroad tracks where heavy weights are carried. Work which formerly required days will now be done in hours and at much less expense.

The officers attached to the station during the year are Lieut. M. E. Hall, Lieut. A. Rust, Ensign Christy, Gunner H. Sinclair, and Pay Clerk J. J. Gering. It gives me pleasure to say that all have been faithful, efficient, and zealous in the discharge of their duties. The same may be said of the clerical force in the office and of all the other employees.

Very respectfully, your obedient servant,

A. R. COUDEN,
Commander, U. S. N., Inspector of Ordnance in Charge.

The CHIEF OF THE BUREAU OF ORDNANCE,
Navy Department, Washington, D. C.

Ballistic tests.

Plate.	Date.	Round.	Projectile.			Penetration.	Effect on projectile.	Effect on plate.	Object test.	N. P. G. letter.
			Caliber.	Weight.	Velocity.					
Carnegie 8" face hardened plate A-794.	Sept. 15, 1896	....	8" Carpenter A. P...	250	1,900	Complete.....	Broke up; largest piece 125 lbs.	Hole in plate 8.5" in diameter.	Projectile.	750
Carnegie 8" nickel steel, face hardened, A-794.	Oct. 8, 1896	....	.....do............	250	1,900	.....do........	Broke up into 26 pieces..	Diameter of shot hole 8.7", interior rough, two through cracks.	.....do....	819
Fragment of above....	Aug. 21, 1897	....	6" Carpenter 1-N...	....	2,493	.....do........	Uninjured.............	One piece broken off, fifteen radial cracks.	.....do....	532
Bethlehem face hardened—unbacked plate, 4774 B, 18' x 6', 4" x 12' 6".	Sept. 18, 1896	....	12" Wheeler A. P...	849	1,769	.....do........	Passed through 15' of sand, recovered half mile in rear of target, uninjured.	Penetration complete, shot hole 12" in diameter, two radial cracks, piece detached 36" x 42".	.....do....	770
Do..............	.....do......	....	.....do............	848	1,787	.....do........	Broke up after passing through plate, split longitudinally into two pieces.	Penetration complete, shot hole 12" diameter, interior smooth, three through cracks (radial).	.....do....	770
Carnegie 4" nickel steel plate B-210.	Oct. 3, 1896	....	8" U. S. Projectile Co. S. A. P.	250	900	.....do.... ...	Recovered uninjured...	Shot hole 8.5" diameter.	.....do....	790
Carnegie plate, Ex.-C, face hardened reforged, 5' x 14' x 10".	Oct. 12, 1896	1	8" Holtzer A. P.....	250	1,786	3⅞"...........	Smashed on plate.......	Diameter of shot hole 9".	Plate.....	789
Do..............	.....do......	2	.....do............	250	2,060	6.25".........	.....do..............	Diameter of hole 10", through cracked.	.....do....	789
Do..............	.....do......	3	10" Holtzer A. P....	500	1,772	Complete.....	Projectile broke on plate, portion of head, welded to piece of plate, passed into backing.	Head and back bulge carried into backing, through cracked and large portion broken from backing.	.... do....	789
Carnegie plate, Ex.-B, face hardened reforged, 8' x 8'-2" x 12".	Oct. 12, 1896	1	12" Holtzer A. P....	845	1,902	.....do........	Projectile broke up into large number of pieces.	Diameter of shot hole 14", rough interior, plate through cracked, broken into two parts.	.....do....	784
Bethlehem, face hardened nickel steel 4771-B-1.	Oct. 21, 1896	....	12" Carpenter A. P.	847	1,800	.....do........	Broke up into 34 pieces..	Shot hole badly scored, broke into 6 pieces.	Projectile.	862
Carnegie face hardened nickel steel 464-B.	Oct. 30, 1896	....	12" Wheeler A. P...	847	1,800	.....do.......	Broke up badly, all going through but one piece, which struck in front.	Shot hole 12.25" diameter, rough, small piece of plate broken out.	.....do....	894
Carnegie 12" face hardened nickel steel B-463-464.	Nov. 10, 1896	....	12" Carpenter A. P.	848	1,800	.....do........	Broke into 271 pieces....	Shot hole scored, 13" diameter, broke into 4 pieces.	.....do....	924

Portion of above plate	Nov. 12, 1896		12" Carpenter A. P.	848	1,800	.....do	Broke into large number pieces, all through plate.	Fragment of plate broken into 4 pieces.	.....do	933
Portion of Carnegie 12" face hardened nickel steel B-463-464.	Nov. 17, 1896		.....do	847	1,800	.....do	Broke up into 165 pieces, through plate.	Portion of plate broken into 3 pieces; diameter of hole 13".	.....do	948
Kearsarge 12.5" barbette face hardened nickel steel B-491, radial curvature 15'.	.....do	1	10" Carpenter A. P.	498	1,311	Estimated 4"	Smashed on plate, head welded.	Estimated penetration, 4"; no cracks.	Plate	914
Do	.....do		10" Wheeler A. P.	500	1,741	Estimated 7".	Smashed on plate, point fused in plate.	No cracks in plate; no dish in rear.	.....do	914
Do	Dec. 29, 1896	3	12" Carpenter A. P.	850	1,932	10.5" to 12"	Broke into 79 pieces; none through plate.	Disk-shaped bulge broken out; plate broken in 3 pieces.	Projectile.	1,032
Carnegie 9" face hardened plate A-794.	Nov. 23, 1896	10	8" Carpenter A. P.	250	1,900	Complete	Broke up badly, all pieces through.	Hole 8" in diameter, one through crack from left edge, one surface crack.	.....do	959
Fragment Carnegie untempered steel plate R-2, 8' x 8' x 7".	Dec. 28, 1896	1	12" Carpenter S. A. P.	850	1,005	.....do	Uninjured	Plate broken into 4 pieces.	.....do	1,028
Carnegie untempered steel B-630, 5' x 20' x 7".	.....do		Midvale 10" S. A. P.		1,160	.....do	.....do	Broken into 4 pieces; shot hole 10.25".	.....do	1,029
Carnegie nickel steel face hardened reforged B-525, 8' x 22' x 6".	Jan. 3, 1897	1	Carpenter 6" A. P., uncapped.	100	2,122	.....do	Broke up, all pieces through.	Diameter of hole 6.5"; one through crack to edge.	Comp. test capped and uncapped projectiles.	19
Do	.....do	2	.....do	100	2,050	.....do	Broke into many pieces, base remaining in front of plate.	Hole 7.5" diameter; cracked to impact 1 and to bottom of plate.	.....do	19
Do	.....do	3	.....do	100	1,986	Estimated 16".	Projectile smashed on plate; head welded.	Previous cracks opened and new cracks developed from impact 1 to this impact.	.....do	19
Do	.....do	4	Service 6" Carpenter capped A. P.	103.5	1,986	Complete	Projectile broke into 17 pieces, all through.	Clean hole, 6" diameter.	.....do	19
Do	.....do	5	Carpenter 6", A. P. hollow cylindrical cap.	100	1,986	6.5"	Smashed on plate; head welded.	Lower left-hand corner broken loose; no new cracks developed.	.....do	19
Do	.....do	6	Carpenter W-sterling lubricant.	100	1,986	About 6"	.....do	Crack developed to impacts 3 and 5.	.....do	19
Do	.....do	7	Carpenter service 6" solid steel plug in entire cavity.	109	1,986	About 7"	Steel plug broken in two; projectile smashed on plate; head welded.	One short crack developed from impact.	.....do	19

Ballistic tests—Continued.

Plate.	Date.	Round.	Projectile.			Penetration.	Effect on projectile.	Effect on plate.	Object test.	N. P. G. letter.
			Caliber.	Weight.	Velocity.					
Carnegie nickel steel face hardened reforged B-525, 8′ x 22′ x 6″.	Jan. 26, 1897	8	Carpenter 6″ with hollow cylindrical copper cap.	102	1,957	Complete	Projectile broke up, all parts through.	Hole 6.5″ diameter; no new cracks.	Comp. test capped and uncapped projectiles.	19
Do	do	9	Carpenter 6″ fitted with copper cap as in round 8.	102	1,825	4.5″	Smashed on plate, head remaining in shot hole, not welded.	Cracks developed between impacts 7 and 8, 7 and 6, and 8 to bottom edge, plate broke off impacts 1, 3, 6, 7, and 9.	do	19
Do	do	10	Carpenter 6″ capped.	103.5	1,825	Complete	Broke up, all parts through.	No new cracks made in plate.	do	19
Do	do	11	Carpenter 6″ hollow cylindrical cap.	104.4	1,796	do	do	do	do	19
Do	do	12	do	104.4	1,821	do	Broke up, 3 pieces, base in front of plate.	do	do	19
Do	do	13	Carpenter 6″ service uncapped.	100.25	1,859	About 6″	Smashed on plate, head welded.	Shock detached portions of plate to left of impacts 7 and 8, fine crack between 11 and 12.	do	19
Do	Feb. 3, 1897	14	Carpenter 6″ service capped.	103.5	1,813	do	Projectile smashed on plate.	Crack from impact 13 to bottom of plate.	do	19
Do	do	15	do	103.5	1,821	Complete	Projectile broke up, base weighing 36.5 pounds, in front of plate.	7″ hole, very rough, no cracks in plate.	do	19
Do	Mar. 16, 1897	16	Carpenter 6″ A. P. fitted with solid copper cap.	105	1,807	Estimated	Smashed on plate; head welded.	No new cracks	do	19
Do	do	17	Carpenter 6″ fitted with hollow cylindrical collar.	105	1,784	Complete	Broke into 5 pieces in front of plate.	New crack developed in plate, this impact to No. 15.	do	19
Do	do	18	Carpenter 6″ service A. P. capped.	104	1,785	do	Broke up, all through	Diameter hole, 6.5″; crack developed 21″ long from impact.	do	19
Do	do	19	do	104	1,793	do	Broke up, all pieces through.	No new crack	do	19
Do	Apr. 24, 1897	20	Firth-Sterling capped 6″ A. P.	104.8	1,912	do	Broke up, all through	Irregular hole, 7″ x 6.26″, no cracks.	Projectile.	136
Do	May 20, 1898	21	do	104.5	1,876	do	Broke into 2 pieces	Clean funnel-shaped hole, no cracks.	do	301

Do	May 26, 1897	23	6″ Carpenter capped A. P.	105	1,673	do	Head upset, unbroken	6.5″ hole, no cracks	do	320
Do	do	24	do	105	1,866	do	Recovered whole, head upset.	Clean hole, 6.5″ in diameter, no new cracks.	do	320
Do	June 9, 1897	25	do		1,725	do	Tip broken off	Diameter of hole, 6.5″, no cracks.	do	365
Carnegie nickel steel face hardened B-525.	June 17, 1897	26	Capped Firth-Sterling 6″ A. P.	104	1,856	do	Broke into 2 pieces, both through.	Clean hole, 6″ diameter, no cracks.	do	385
Do	July 3, 1897	27	Carpenter 6″ A. P. capped.	105	1,865	do	Broken into 3 pieces, all through.	Clean hole, 6″ in diameter, piece of cap fused into hole.	do	418
Do	July 9, 1897	28	Firth-Sterling 6″ capped A. P.	104.6	1,822	do	Unbroken	Clean hole, 6″ in diameter, one crack developed to nearest impact.	do	422
Do	July 15, 1897	29	Carpenter 6″ capped	105	1,830	do	Recovered, uninjured	No cracks	do	433
Do	July 28, 1897	30	do	104	1,897	do	Unbroken	Clean round hole, 6.25″ diameter, two small cracks from impact.	do	474
Do	Aug. 7, 1897	31	do	104	1,876	do	Tip of point broken off	Five fine radial cracks about 6″ long.	do	503
Do	do	32	Midvale 6″ capped A. P.	102.4	1,872	do	Uninjured	No cracks	do	502
Do	do	33	do	103	1,870	do	Point broken off	do	do	502
Do	Aug. 16, 1897	34	Carpenter 6″ capped A. P.	101.7	1,865	About 6″	Broke up, not through	Back bulge cracked	do	535
Do	do	35	Carpenter 6″ capped "2-T."	104	1,879	Complete	Broke into 7 pieces	Hole, 7.5″ diameter, plate broken into 3 pieces.	do	532
Kearsarge 4″ side armor, 7.5′ x 21′ x 4″, Carnegie B-480.	Feb. 11, 1897	1	5″ Carpenter A. P.	50	1,522	Very slight	Broken into very small fragments.	Dish about ¼″	Plate	60
Do	do	2	Carpenter 5″ A. P.	50	1,977	Complete	Head of projectile buried itself in backing, 3 pieces in front of plate.	Diameter of shot hole about 9″.	Determine velocity for penetration.	60
Carnegie 7″ untempered steel plate 539, 5′ x 17.5′ x 7″.	Mar. 10, 1897		Midvale 10″ S. A. P.	500	1,000	do	Uninjured	Broke off upper left corner, diameter shot hole 10.5″.	Projectile.	133
Do	Aug. 7, 1897		do		1,025	do	Broken into 2 pieces, exposing powder chamber.	Plate broken into 2 pieces.	do	522
Do	Aug. 19, 1897		Midvale 10″		1,030	do	Recovered whole, uninjured.	Broken into 3 pieces	do	543
Kearsarge face hardened reforged nickel steel B-603, Carnegie 7.5′ x 16′, thickness tapering, 16.5″ to 9.5″.	Mar. 16, 1897	1	Carpenter 10″ A. P.	500	1,293	7″	Projectile broke up, head welded.	Thickness at impact 11.8″. Effect very slight and local.	Plate	146
Do	do	2	Wheeler-Sterling 10″ A. P.	500	1,850	9″	Projectile broke up on plate, excellent projectile.	Plate dished about ¼″, 1 armor bolt broken.	do	146

Ballistic tests—Continued.

Plate.	Date.	Round.	Projectile.			Penetration.	Effect on projectile.	Effect on plate.	Object test.	N. P. G. letter.
			Caliber.	Weight.	Velocity.					
Carnegie No. 110894, 20' x 4' x 1.5''.	Apr. 1, 1897	1	Carpenter 6'' A. P.	99.25	1,850	Dish 3'', length 27''.	Broke up	Angle of impact, 7; no crack in plate.	Plate	175
Carnegie No. 115640, 20' x 4' x 1.5''.	do	1	do	100	1,850	Dish 30'' long, 4'' wide, 4'' deep.	Broke up; no pieces through.	Angle impact, 7 degrees; crack made length of impact.	do	175
5.5'' re-entrant port plate Carnegie No. 504.5, reforged, face hardened nickel steel, 10.25' x 7.5' x 5.5'', with flap turned back for port.	Apr. 2, 1897	1	do	99.5	1,943		Broke up badly into very many pieces, gun shield plate keeping all out.	Angle impact, 45 degrees; struck flap and broke it off.	do	173
Do	Apr. 10, 1897	2	do	100	1,857	2⅜''	Broke into very many small fragments, gun shield plate keeping all out.	Angle of impact, 45 degrees; no cracks developed in plate.	do	173
Two nickel steel reforged face hardened plates superimposed 6'' B-525 and B-504.5.	May 8, 1897	1	Carpenter 10'' A. P.	500	1,952	Complete (both plates).	Point broken	Clean hole through 6'' plate, cone-shaped hole, 6'' diameter second plate.	do	248
5'' reforged face hardened nickel steel Carnegie plate B-653, 7' 8'' x 13' 6'' x 5''.	May 20, 1897	1	Firth-Sterling 5'' A. P.	50	1,640	4''	Smashed up, head welded.	Very slight	do	307
Do	do	2	do	50	1,749	4''	do	Two armor bolts broken.	do	307
Carnegie 12'' reforged face-hardened nickel steel exp'l plate, 8' x 12' x 12''.	June 3, 1897	1	Holtzer 12'' A. P.	850	1,911	Complete	Broke up, 3 large pieces in front of plate, other pieces through plate and backing, and in sand.	Diameter shot hole 13.5'', interior scored and fused, plate dished 1'', no cracks.	do	333
Do	do	2	Firth-Sterling 12'' A. P.	850	1,769	About 10''	Broke up, head welded.	Back bulge 4'' high, no cracks.	do	333
⅜'' nickel steel gun shield "A."	June 12, 1897	1	1-pdr. A. P.		1,725	Angle impact 40 degrees; no penetration	Broke up	Back bulge 3'' long, 2'' wide, ¼'' high.	do	209
Do	do	2	do		683	Angle impact normal, penetration.	Badly bruised and split.	No cracks	do	209

⅜" nickel steel gun shield "B."	do	1	do		1,725	40 degrees; no penetration.	Broke up	Bulge 3.5" long, 1⅜" wide, ⅜" deep, upper half of dish broken out.	do	209
Do	do	2	do		683	Normal, 6/10"	Uninjured	No cracks	do	209
⅜" nickel steel gun shield "C."	do	1	do		1,725	40 degrees; no penetration.	Broke up	Through crack 1" long, indentation 3⅜" long, ⅜" wide, ⅜" high, upper half of dish broken out.	do	209
Do	do	2	do		1,734	do	do	Indentation 3"x1.25"x⅜", through crack, but no piece broken out.	do	209
Do	do	3	do		683	Normal penetration, 83/100.	Projectile uninjured		do	209
⅜" nickel steel gun shield "A."	June 17, 1897	3	do		1,183	Impact normal.	Projectile uninjured; point just through.	Plate dished ⅜"	do	209
⅜" nickel steel gun shield "B."	do	3	do		1,183	do	Penetration 1⅛"; head smashed.	Point got through	do	209
⅜" nickel steel gun shield "C."	do	4	do		1,183	do	do	do	do	209
⅜" manganese steel shield plates, from Taylor Iron and Steel Co., "A."	Aug. 13, 1897	1	do		1,725	40 degrees impact, indentation 1⅛.	Broken up; piece about 1.5"x1⅛" driven through.		do	444
Do	do	2	do		1,725	do	Projectile broke up	Piece broken out 1"x⅜". Cracks in plates unimportant.	do	444
Do	do	3	do		700	Normal impact, indentation 1".	Recovered entire	Metal cracked through at point of impact.	do	444
Do	do	4	do		700	do	do	do	do	444
⅜" manganese steel shield plates, from Taylor Iron and Steel Co., "B."	do	1	do		1,725	40 degrees impact, indentation 1.25".	Broke up	No piece broke out	do	444
Do	do	2	do		1,725	do	do	do	do	444
Do	do	3	do		700	Impact normal, indentation ⅜".	Recovered whole	No cracks	do	444
Do	do	4	do		700	Impact normal, indentation ⅛".	do	do	do	444
Bethlehem ⅜" nickel steel plate.	Aug. 23, 1897	1	do		1,711	40 degrees impact, indentation 3.75" x 1.5" x ⅜".	Broke up	Two small cracks	do	435
Do	do	2	do		1,711	40 degrees impact, indentation 2.25" x 1⅜" x ⅛".	do	No cracks	do	435
Do	do	3	do		683	Normal impact, indentation ⅜".	Uninjured	do	do	435

Ballistic tests—Continued.

Plate.	Date.	Round.	Projectile.			Penetration.	Effect on projectile.	Effect on plate.	Object test.	N. P. G. letter.
			Caliber.	Weight.	Velocity.					
Bethlehem ⅜" nickel steel plate.	Aug. 23, 1897	4	1-pdr. A. P.		683	Normal impact, indentation ¼".	Uninjured	No cracks	Plate	435
Fragment 3" mild steel plate, 4.5' x 6.5' x 3".	June 30, 1897	1	Johnson 5" cast steel	50	1,282	Complete	Recovered unbroken; head upset.	Plate broken up	Projectile.	404
Fragment of above	do	2	do	49.25	1,265	do	Shell broke up	Plate broken	do	404
Do	do	3	do	50	1,274	do	Broke up, 3 pieces		do	404
4" nickel steel, 6' x 8' x 4".	do	4	do	48.75	1,522	1¾"	Smashed on plate	Plate dished ¼", no cracks	do	404
3" mild steel plate	May 27, 1897		U. S. Proj. Co., 5" S. A. P.		1,250	Complete	Recovered, set-up slight at bourrelet.	Plate cracked and split	do	283
Do	do		do		1,250	do	do	do	do	283
Do	do		do		1,250	do	Recovered, set-up slight, less than above.	do	do	283
Do	do		do		1,250	do	do	do	do	283
Bethlehem protective deck plate, 7037-2-B-1. 24' x 50.5" x 1.75".	July 13, 1897	1	6" Holtzer A. P.	98.8	1,886	Impact, 9 degrees; length of impact, 2' 10"; width, 3.5".	Broke up	Crack 1' 9" x 1.6"	Plate	412
Bethlehem protective deck plate, 6156-5-B-1 40" x 12'-9" x 1.75".	do	1	do	99.10	1,900	Nothing	Uninjured	Length impact, 3' 3"; width, 3.75"; depth, 6"; no cracks.	do	412
Bethlehem nickel steel face hardened, reforged plate, 6327 B, 6' x 10' x 6".	Aug. 18, 1897	1	do	100	1,467	About 4"	Broke up	No cracks in plate	do	467
Do	do	2	do	100	1,673	About 5"	do	do	do	467
Bethlehem nickel steel face hardened, reforged plate, B-8327-B, 6" x 6' x 10'.	Aug. 24, 1897		6" capped Carpenter A. P.	104.75	1,875	Complete	Uninjured	No cracks	Projectile.	559
Do	Aug. 25, 1897		do	104.5	563	do	Broke into 8 pieces, remaining in plate and backing.	do	do	1,896
Do	Sept. 8, 1897		do	105	1,877	do	Lost in river	do	do	563
Do	do		do	105	1,877	do	Recovered whole	do	do	563

REPORT

OF THE

CHIEF OF THE BUREAU OF CONSTRUCTION AND REPAIR.

NAVY DEPARTMENT,
BUREAU OF CONSTRUCTION AND REPAIR,
Washington, October 1, 1897.

SIR: In obedience to the Department's instructions, I have the honor to submit herewith a report of the work done under the cognizance of this Bureau during the year ending June 30, 1897, and also to submit estimates for appropriations required for the fiscal year ending June 30, 1899.

The estimate marked A is for the salaries of employees in the Bureau.

The estimate marked B is for the general repair of vessels at navy-yards and on foreign stations, purchase of stores, materials, machinery, tools of all kinds, preservation of machinery and stores, and for the proper performance of all work not otherwise provided for under the cognizance of this Bureau.

The estimates marked B special are for the completion of the work already authorized on the *Hartford* and *Chicago*, including outfits, and for the building of one coaling barge and two water barges.

The estimates marked B 1 special are for the improvement of construction plants at the several navy-yards.

The estimates marked C are for the pay of such clerks and writers at the several navy-yards as are indispensable for the proper and systematic prosecution of the work.

The estimates marked D are for continuing the work on hulls and outfits of vessels in course of construction.

The estimate marked D special is for the completion of one composite vessel propelled by sail, including outfit, to be used for the training of cadets at the United States Naval Academy.

ESTIMATES, APPROPRIATION CONSTRUCTION AND REPAIR, 1898–99.

Estimates of the appropriations required for the fiscal year ending June 30, 1899, by the Bureau of Construction and Repair, Navy Department.

Detailed objects of expenditures and explanations.	Estimated amount required for each detailed object.	Total amount to be appropriated under each head of appropriation.	Amount appropriated for current fiscal year ending June 30, 1898.
A. *Salaries.*			
One chief clerk (appropriated)	$1,800.00		
One draftsman (appropriated)	1,800.00		
One assistant draftsman (appropriated)	1,400.00		
Two clerks of class 3, at $1,600 each (appropriated)	3,200.00		
Two clerks of class 1, at $1,200 each (appropriated)	2,400.00		
Four clerks of class 1 (two of whom shall be competent stenographers), at $1,200 each (submitted) [a]	4,800.00		
One assistant messenger (appropriated)	720.00		
One laborer (appropriated)	660.00		
		$16,780.00	$11,980.00

[a] These clerks are now employed in the Bureau and paid out of the appropriation "Increase of the Navy."

Estimates of the appropriations required for fiscal year ending June 30, 1899, etc.—Cont'd.

Detailed objects of expenditures and explanations.	Estimated amount required for each detailed object.	Total amount to be appropriated under each head of appropriation.	Amount appropriated for current fiscal year ending June 30, 1898.
B. *Construction and repair of vessels.*			
For preservation and completion of vessels on the stocks and in ordinary; purchase of materials and stores of all kinds; steam steerers, pneumatic steerers, steam capstans, steam windlasses, and all other auxiliaries; labor in navy-yards and on foreign stations; purchase of machinery and tools for use in shops; carrying on work of experimental model tank; wear, tear, and repair of vessels afloat; general care, increase, and protection of the Navy in the line of construction and repair; incidental expenses, such as advertising, freight, foreign postage, telegrams, telephone service, photographing, books, professional magazines, plans, stationery, and instruments for drafting room (appropriated act March 3, 1897)	$2,500,000	$2,500,000	$1,500,000
B. *Special.*			
For the completion of repairs to, and outfit for, the U. S. S. Hartford (appropriated act March 3, 1897)	30,000	30,000	70,000
For the completion of repairs to, and outfit for, the U. S. S. Chicago (appropriated act March 3, 1897)	225,000	225,000	50,000
Coal and water barges:			
For one coaling barge, 800 tons capacity (submitted)	16,000		
For two water barges (submitted)	14,000	30,000	
B1. *Special—Improvement of construction plants.*			
For repairs to, and improvement of, plant at navy-yard, Portsmouth, N. H. (submitted)	50,000	50,000	
For repairs to, and improvement of, plant at navy-yard, Boston, Mass. (submitted)	50,000	50,000	
For repairs to, and improvement of, plant at navy-yard, New York, N. Y. (submitted)	50,000	50,000	
For repairs to, and improvement of, plant at navy-yard, League Island, Pa. (submitted)	50,000	50,000	
For repairs to, and improvement of, plant at navy-yard, Norfolk, Va. (submitted)	50,000	50,000	
For repairs to, and improvement of, plant at navy-yard, Mare Island, Cal. (submitted)	50,000	50,000	
For repairs to, and improvement of, plant at Puget Sound Naval Station, Wash. (submitted)	50,000	50,000	
C. *Civil establishment.*			
At navy-yard, Portsmouth, N. H.:			
One clerk to naval constructor (appropriated)	1,400.00		
Two writers, at $1,017.25 each (appropriated)	2,034.50		
At navy-yard, Boston, Mass.:			
One clerk to naval constructor (appropriated)	1,400.00		
One writer, at $1,017.25 (submitted)	1,017.25		
At navy-yard, Brooklyn, N. Y.:			
One clerk to naval constructor (appropriated)	1,400.00		
Three writers, at $1,017.25 each (appropriated)	3,051.75		
At navy-yard, League Island, Pa.:			
One clerk to naval constructor (appropriated)	1,400.00		
One writer, at $1,017.25 (submitted)	1,017.25		
At navy-yard, Washington, D. C.:			
One clerk to naval constructor (appropriated)	1,400.00		
At navy-yard, Norfolk, Va.:			
One clerk to naval constructor (appropriated)	1,400.00		
Two writers, at $1,017.25 each (appropriated)	2,034.50		
At navy-yard, Pensacola, Fla.:			
One writer, at $1,017.25 (appropriated)	1,017.25		
At navy-yard, Mare Island, Cal.:			
One clerk to naval constructor (appropriated)	1,400.00		
Two writers, at $1,017.25 each (appropriated)	2,034.50		
		22,007.00	19,972.50
D. *Increase of the Navy—Construction and machinery.*			
On account of hulls and outfits of vessels and steam machinery of vessels heretofore authorized (See joint letter below.)	3,970,473.00	3,970,473.00	6,425,359.00
D. *Special—Increase of the Navy—Training vessel for the Naval Academy.*			
For the completion of one composite vessel, propelled by sail, to be used for the training of cadets at the Naval Academy, including outfit (appropriated act March 3, 1897, and deficiency act July 19, 1897)	125,000.00	125,000.00	125,000.00

WASHINGTON, D. C., *September 1, 1897.*

SIR: We have the honor to submit herewith, in duplicate, joint estimates (inclosures Nos. 1 and 2) of the amounts required by the Bureaus of Construction and Repair and Steam Engineering, under appropriation "Increase of the Navy, construction and machinery," for work on new vessels authorized by Congress, to June 30, 1899, as per statements in detail herewith (inclosures Nos. 3 and 4), viz:

Sheet D.

Under Bureau of Construction and Repair:		
For fiscal year 1897–98	$3,568,114	
For fiscal year 1898–99	2,806,169	
Total		$6,374,283
Under Bureau ofSteam Engineering:		
For fiscal year 1897–98	2,779,192	
For fiscal year 1898–99	1,827,159	
Total		4,606,351
Aggregate		10,980,634
Balance in Treasury available for above July 1, 1897		7,010,161
Appropriation required for fiscal year 1898–99		3,970,473

This amount, $3,970,473, is the estimated amount required to be appropriated for work on new vessels authorized by Congress for "Increase of the Navy, construction and machinery," for the fiscal year ending June 30, 1899.

Very respectfully,

PHILIP HICHBORN,
Chief Constructor, U. S. N., Chief of Bureau.
GEO. W. MELVILLE,
Engineer in Chief, U. S. N., Chief of Bureau.

The SECRETARY OF THE NAVY.

In submitting the above estimates, the Bureau desires to invite special attention to the necessity for an increased appropriation under "Construction and repair" for the next fiscal year. Owing to the failure of the construction and repair appropriation for the year ending June 30, 1897, during the last few months of that year a considerable amount of authorized work had to be suspended owing to lack of funds. This has caused an immediate drain on the appropriation for the present fiscal year, and the Bureau, realizing the necessity of properly fostering its available funds for the year, has been compelled to cut down the estimates of the naval constructors at the several yards, in the very first month of the fiscal year, even then exceeding to a considerable extent the proportionate allotment for the month, of the current appropriation. This is a discouraging state of affairs, and makes the exhaustion of the appropriation before July 1 next almost an assured fact. Such exhaustion means a wholesale reduction of the navy-yard forces, and the discharge of competent and trained men, which is naturally demoralizing.

While work was in progress at the principal yards under the increase of the Navy, the effect of the construction and repair appropriation becoming exhausted, or nearly so, toward the end of a fiscal year, was not so noticeable as regards the navy-yard force, since in such an event it was possible to push the new work while the scarcity under construction and repair existed. This fact and the fact that, when occasion required, repair work was given preference over new work, naturally increased the cost and time of doing new work. Nevertheless, the advantage of having such work to fall back upon, and thus retaining an organized force of skilled workmen, can not be overestimated, and the Bureau earnestly recommends that at least one vessel should be building at each of the important navy-yards. Probably the most desirable type of vessel for the purpose intended, particularly in view of the present state of the armor question, would be that of a sheathed cruiser of comparatively light draft and great coal endurance, with quarters for a flag officer. The Bureau's preference for sheathed ships for cruising purposes, moreover, has been stated from time to time in its annual reports since 1889, and a special point of it was made last year.

IMPROVEMENT IN NAVY-YARD PLANTS.

In addition to the necessity for increased appropriation in order to carry on repairs actually required, attention is invited to the fact that there has been for some years past an urgent necessity existing for the improvement of navy-yard plants, in order to insure the efficient and economical execution of work. The Bureau, while noting in its reports the detailed recommendations of naval constructors in this respect, has hesitated from year to year to ask for an additional appropriation for this purpose, hoping to be able to make the necessary improvements out of the current appropriations for the year. Except in a small degree, this has regularly been found impossible. With the outlook for the present year, the Bureau does not even hope to accomplish anything in this direction. It directed the especial attention of naval constructors, however, to their recommendations as to necessary improvements in plants, in their annual reports of this year, directing each to base his report on the relative importance of the navy-yards as regards work authorized or likely to be authorized, and the present condition of the plant for doing such work. The Bureau is satisfied that these reports have been prepared with great care, and extracts and estimates of the more important recommendations are submitted herewith. (See pp. 399 to 75.) Reference to these extracts will show that there is a decided necessity for funds at all of the yards. The plants at New York, Norfolk, and Mare Island require additions, alterations, and repairs to keep them up to a proper standard of efficiency, while the yards at Boston, Portsmouth, and League Island, though not actively engaged, should be put into a condition that would enable them to be worked advantageously at short notice, should occasion require. The necessity for establishing a plant at Puget Sound is referred to in another part of this report.

The Bureau, therefore, includes in its estimates, marked B 1 special, the sum of $350,000 for repairs and improvements to navy-yard plants, being $50,000 to be applied to each of the navy-yards at New York, Boston, Portsmouth, League Island, Norfolk, Mare Island, and Puget Sound.

In submitting extracts from the constructors' reports (see pp. 399 to 411), the Bureau has endeavored to point out, in a general way, the items to which these funds could be most advantageously applied. It is evident from even the partial requirements, as quoted from the reports, that a still greater sum could be expended to advantage.

It is a well-known fact that the most successful private firms are constantly improving and adding to their plants, while under the Department there are seldom sufficient funds for more than a small part of the necessary maintenance of navy-yard plants.

The necessity for additional dry docks is urged in another portion of this report, and the recommendations of naval constructors at navy-yards in this respect and as to the additional buildings required have been referred to the Bureau of Yards and Docks for consideration.

TRAINING SHIP FOR NAVAL ACADEMY.

The act of Congress, approved March 3, 1897, making appropriation for the naval service, authorized, under the "Increase of the Navy," the building of one composite vessel for the Naval Academy, propelled by steam and sail, at a cost, including outfit, of $250,000.

This paragraph of the naval appropriation act was amended under the deficiency bill by striking out the words "steam and," and inserting in lieu of "two hundred and fifty thousand dollars" the words "one hundred and twenty-five thousand dollars."

As the original appropriation of $250,000 was based on the estimate of this Bureau for a sailing vessel of about 1,100 tons displacement, it is obvious that the appropriation of $125,000 will be inadequate for the construction of a suitable practice sailing ship, and an item of $125,000, marked D, special, for the completion of such vessel, is included in the Bureau's estimates.

Plans for a practice vessel have been prepared in the Bureau, and proposals are about to be invited for the construction of the hull and such of the fittings, as can be obtained under the available appropriation.

DUTIES OF THE BUREAU.

The only important modification in the duties of the Bureau during the past fiscal year related to the inspection of steel. Toward the close of the year 1896 many reports were received from the superintending constructor at Newport News, to the effect that large quantities of plates received for battle ships Nos. 5, 6, and 7 were deficient in working qualities, and in many instances presented surface defects which rendered the plates unfit for use. The proportions of this trouble became so great that the matter was referred to the Department, and a board, consisting of Capt. A. H. McCormick, Chief Engineer J. A. B. Smith, and Assistant Naval Constructor R. B. Dashiell, was appointed to investigate the matter.

The board found that, with hardly an exception, all weights of plating received at the shipbuilding yard failed to meet the requirements of the specifications, and it was therefore recommended that the specifications be modified, an upper limit of tensile strength being required in order to prevent the steel from becoming deficient in elongation, and yet keep the tensile strength well within the requirements of good practice in shipbuilding. The upper limit was therefore placed at 67,000 pounds per square inch and the lower limit at 57,000 pounds per square inch, with an elongation of 23 per cent in 8 inches. Slight changes were also made in other requirements.

An order of the Department dated February 16, 1897, dissolved and abolished the steel-inspection board on March 1 following, and placed the inspection of steel under the bureaus interested, with directions that from the date named the inspectors would be governed as to methods and routine of inspection by instructions issued by the bureau concerned in the material under inspection. The inspection of all structural steel was thus placed under the cognizance of this Bureau, and steps were taken immediately to secure a thorough and efficient inspection.

Work on the vessels was continued, but the superintending constructor was ordered to make a special test of each individual plate, where such test was practicable, in order that no deficient material might get into the work. At the same time the Bureau recommended to the Department that, inasmuch as the number of officers available for inspection duty was not such as to permit a thorough inspection of the great quantity of material under orders to be made, a number of civilian steel inspectors be appointed to assist the officers in their duties. The Department approved of this plan, and after a competitive examination, conducted under the Bureau, 15 civilians were found qualified for the work and were appointed probationally by the Department. This step has met with the full approbation of all the officers who have been concerned with the inspection and handling of steel material. The inspectors referred to have performed their duties in a satisfactory manner in all respects, and at the end of their six months' probation (August 1) the Department made their appointments absolute.

The Bureau follows the policy of shifting these inspectors from one works to another, from time to time, and also has located several of them at the shipyards in order to make check inspections of the plates upon reception. The various mills are now shipping material, under the Bureau's cognizance, at an average rate of more than 4,000,000 pounds per month.

VESSELS COMPLETED.

During the last fiscal year the following vessels were finally accepte by the Government:

Name of vessel.	Where and by whom built.	Date of acceptance
Massachusetts	William Cramp & Sons, Philadelphia, Pa	Oct. 29, 18
Oregon	Union Iron Works, San Francisco, Cal	Dec. 31, 1
Ericsson	Iowa Iron Works, Dubuque, Iowa	Oct. 16
Brooklyn	William Cramp & Sons, Philadelphia, Pa	May 6

The *Puritan* was completed at the navy-yard, New York, and placed in commission December 10, 1896.

The following vessels have been tried during the past fiscal year, preliminarily, and accepted on the dates given, subject to the usual final test after a certain time in service. Pending final acceptance the Government retains a small balance on their account.

Name of vessel.	Type.	Date of trial.	Nature of trial.	Speed required by contract.	Speed obtained on trial.	Date of preliminary acceptance.	By whom built.
				Knots.	*Knots.*		
Brooklyn	Armored cruiser	1896. Aug. 27	Straightaway course.	20	[b]21.91	1896. Sept. 28	Wm. Cramp & Sons.
Iowa	Seagoing battle ship.	1897. Apr. 7	do	16	[b]17.09	1897. June 22	Do.
Nashville	Gunboat	May 14	do	14	[b]16.30	June 25	Newport News Co.
Wilmington	do	Mar. 27	do	13	[b]15.08	May 17	Do.
Helena	do	Mar. 29	do	13	[b]15.50	May 24	Do.
Annapolis	do	Apr. 22	do	12	13.17	May 18	Lewis Nixon.
Vicksburg	do	May 29	Standardized screw.	12	12.71	July 8	Bath Iron Works.
Newport	do	May 27	do	12	12.29	do	Do.
Wheeling	do	May 28	do	12	12.88	Aug. 6	Union Iron Works.
Marietta	do	May 25	do	12	13.02	do	Do.
Porter	Torpedo boat	Feb. 10	Straightaway course.	27½	28.63	Feb. 12	Herreshoff Manufacturing Co.
Foote	do	June 25	do	24½	24.53	July 28	Columbian Iron Works.

[a] Finally accepted.

[b] Premium for speed in excess of contract requirements.

BATTLE SHIP IOWA.

The Bureau desires to invite special attention to the results achieved in connection with the U. S. S. *Iowa:* First, as to the actual load that can be carried on the designed normal draft, compared with that anticipated; second, as to the cost of authorized changes, compared with the *Indiana*, *Massachusetts*, and *Oregon.*

Normal load.—The designed mean draft of the *Iowa*, at normal displacement, was 24 feet, the normal load which it was estimated could be carried at that mean draft being 1,253 tons, made up of 625 tons of coal, 361 tons of ammunition, and 267 tons of provisions, water, stores, crew, effects, etc. Reports of weights of the completed vessel show that the load which can be carried on the mean draft of 24 feet is 1,465 tons, or 212 tons greater than that anticipated at the time the vessel was designed. This gain of 212 tons can be utilized to carry ammunition up to the full stowage capacity (510 tons) and increase the normal coal by 63 tons, or to increase the normal coal by 212 tons, making it 837 tons, all on the designed normal mean draft of 24 feet.

Cost of changes.—The figures given below show the comparative cost of changes in the four first-class battle ships thus far completed. The figures on the *Iowa* are not final, but the few returns not yet made have been liberally allowed for in making up the totals.

Vessels.	Contract price of hull and machinery.	Cost of changes.			Percentage of increased price.
		Increased.	Decreased.	Net.	
Indiana	$3,063,000	$170,101.68	$20,126.40	$149,975.28	4.9
Massachusetts	3,063,000	185,772.80	19,563.40	166,209.40	5.4
Oregon	3,222,810	*a*348,887.09	14,729.00	334,158.09	10.4
Iowa	3,010,000	72,297.44	3,832.80	68,464.64	2.3

a Includes $62,378.53 for care and preservation and insurance.

The above figures show the results in connection with the *Iowa* as to the cost of changes, at a decided advantage, due, in great part, to increased experience at the time of design. More than 10 per cent of the increased cost of the *Iowa*, moreover, namely, $7,921.61, is chargeable to the use of fireproofed wood, a material not known at the time of the design. Excluding this item, the net increased cost would have been barely 2 per cent of the contract price, against 4.9 per cent on the *Indiana*, and 5.4 per cent on the *Massachusetts.*

In this connection the Bureau desires to point out the advisability, which it has frequently urged, of limiting the changes in design as far as it is possible to do so, and of not even considering the substitution of parts or accessories that are of doubtful superiority over those originally embodied in the design, particularly when increased time and expense are involved. Our Navy is reaching the stage when changes which practically involve experiment should be reserved for new designs and not allowed to delay, and often compromise, vessels already under construction.

GUNBOATS.

An important addition to the effective force of the Navy has been made since the date of the Bureau's last report, in the shape of the light-draft and composite gunboat type. At the present date the three light-draft gunboats built at Newport News are all in active service, and the six composite gunboats are practically completed, three of them being in commission. These vessels form a valuable and necessary adjunct to an increasing Navy, and will be especially effective in maintaining the Government's interest in foreign waters during times of peace or civil disturbance.

The first cost of all these vessels was remarkably low, aggregating about $2,000,000 for the nine, or not more than the cost of a single first-class armored cruiser. The cost of their maintenance, moreover, particularly in the case of the composite boats, with coppered bottoms, considerable sail power, and with working parts and fittings liable to but little wear and tear, should be a minimum.

The reports of the trials of these gunboats—all but one of which have had official trials—is distinctly favorable, as is the general opinion, so far as ascertained, of all officers who have thus far been connected with them. The *Annapolis* has been the first of the single-screw gunboats fitted with sail power to undergo final trial, but may be considered as a representative of the type. Of this vessel the Trial Board reported: "The maneuvering qualities of the vessel were found to be excellent," and "the Board is of the opinion that the vessel would not fail in efficient and satisfactory behavior under any conditions of service."

It may be stated with propriety that the *Annapolis* class is the first to have been designed and completed throughout under the provisions of General Order No. 433. The Bureau is confident that the work carried out in accordance therewith was satisfactory to all concerned, and that more valuable results are obtainable from a strict adherence to it in all cases.

CONTRACTS AWARDED.

The bids for battle ships No. 7, 8 and 9, appropriated for under the act approved June 10, 1896, the circular defining the chief characteristics of which was appended to the last annual report, were opened on September 14, 1896, at the Department. Bids for three 30-knot torpedo boats, and for not more than ten additional torpedo boats, authorized by the same act, the circulars defining the chief characteristics of which were also appended to the last annual report, were opened at the Department on September 18, 1896. Schedules of the bids received for the above battleships and torpedo boats are given on pages 59 and 60. Contracts were awarded by the Department as follows:

Battle ships.

To the Newport News Shipbuilding and Dry Dock Company, one at	$2,595,000
To the Wm. Cramp & Sons Ship and Engine Building Company, one at	2,650,000
To the Union Iron Works, one at	2,674,950

Torpedo boats.

Name of firm.	No. of boats.	Type of boat.	Contract price for each.
Bath Iron Works	2	30-knot	$194,000
Union Iron Works	1	do	227,500
Wolff & Zwicker Iron Works	2	22½-knot	81,546
Herreshoff Manufacturing Co	1	do	85,000
Do	2	20-knot	39,000
Columbian Iron Works	1	do	45,000
Chas. Hillman Co	1	do	48,500

The act making appropriations for the naval service for the fiscal year ending June 30, 1898, approved March 3, 1897, authorized the construction of not more than three torpedo boats, each to have a speed of not less than 30 knots, and to cost, in all, not exceeding $800,000. Under a ruling of the Department this appropriation was construed to provide only for the boats complete, exclusive of armament and outfit.

The Bureau did not undertake the preparation of designs for these boats, believing, as in the case of the 30-knot boats authorized last year, that better results might be obtained by allowing intending bidders every possible latitude. The great variation in the numerous designs submitted, however, made a decision as to the relative value of the bids an exceedingly difficult one. A similar situation is not likely to occur again, as the Bureau anticipates obtaining valuable data from the boats now under construction.

Extracts from the act authorizing these boats and the circular issued by the Bureau defining their chief characteristics are given on pp. 396 to 398, together with a schedule of the bids opened at the Department June 21 last. The contracts for these boats were awarded as follows:

To Harlan & Hollingsworth, one 340-ton boat, at	$236,000
To Gas Engine and Power Company and Chas. L. Seabury Company, consolidated, one 235-ton boat, at	210,000
To Wolff & Zwicker Iron Works, one 247.5-ton boat, at	214,500

STEAM TUGS NO. 6 AND NO. 7.

The naval appropriation for the fiscal year ending June 30, 1897, authorized the construction of two steam tugs, one for the naval station, Port Royal, and the other for the Puget Sound Naval Station. The Department having approved the recommendation of this Bureau, as to the advisability of building these tugs at navy-yards, instructions have been issued in accordance with the directions of the Department for the construction of one boat at the navy-yard, New York, and of the other at the navy-yard, Mare Island. Of the $50,000 appropriated for each tug, this Bureau has retained only $23,500 for the construction of hull and fittings complete, the Bureau of Steam Engineering demanding an equal amount for the propelling machinery.

The general characteristics of these tugs are given on page 398.

VESSELS UNDER CONSTRUCTION.

The battle ships and torpedo boats contracted for during the present fiscal year add considerably to the list of vessels under construction. Most of the gunboats, however, have been completed during the year, and are therefore stricken from the list.

The battle ships have advanced rapidly since the keels were laid, notwithstanding a slight delay due to defective material, and at the date of this report are rapidly approaching a condition when a part of the armor could be fitted to advantage. Under the terms of the contract, however, and as the vessels are designed, they can be completed without armor, and their trial trips and preliminary acceptance from the contractors need not, therefore, be delayed on account of failure to receive armor.

The work on torpedo boats, particularly in the case of the 30-knot boats, has not been pushed as rapidly as the terms of the contract require. In most cases, however, the work is a decided departure for the contractors concerned, and there is no reason to suppose that the contracts will not eventually be fulfilled in all respects except as to time.

The tabular statement below gives the condition of all vessels under construction July 1, 1897:

Name of vessel.	Where and by whom building.	Estimates of superintending constructors.	
		Percentage of completion.	Probable date of completion.
Kearsarge	Newport News Shipbuilding and Dry Dock Co., Newport News, Va.	32	August, 1899.
Kentucky	do	31	August, 1899.
Illinois *a*	do	14	September 26, 1899.
Alabama *a*	Wm. Cramp & Sons, Philadelphia, Pa	14	September 24, 1899.
Wisconsin *a*	Union Iron Works, San Francisco, Cal	6	September 19, 1899.
Princeton	J. H. Dialogne & Son, Camden, N. J	90	November 1, 1897.
Rodgers	Columbian Iron Works, Baltimore, Md	90	August 21, 1897.
Winslow	do	80	October 16, 1897.
DuPont	Herreshoff Manufacturing Co., Bristol, R. I		
Rowan	Moran Bros Co., Seattle, Wash	75½	November 1, 1897.
Dahlgren	Bath Iron Works, Bath, Me	4	
T. A. M. Craven	do	4	
Farragut	Union Iron Works, San Francisco, Cal	10	July 5, 1898.
Davis	Wolff & Zwicker Iron Works, Portland, Oreg.	45	January 8, 1898.
Fox	do	42	January 22, 1898.
Morris	Herreshoff Manufacturing Co., Bristol, R. I		July 15, 1898.
Talbot	do	34	November 15, 1897.
Gwin	do	34	Do.
Mackenzie	The Chas. Hillman Ship and Engine Building Co., Philadelphia, Pa.	28	January 1, 1898.
McKee	Columbian Iron Works, Baltimore, Md	2	April 15, 1898.
Submarine torpedo boat	do	51	
Samoset (steam tug)	United States navy-yard, Norfolk, Va	96	August 10, 1897.

a The probable date of final completion of the *Illinois*, *Alabama*, and *Wisconsin* is based on the supposition that armor will be delivered without undue delay.

VESSELS SURVEYED AND REPAIRED.

The following vessels have been surveyed during the fiscal year ending June 30, 1897, and the work authorized:

Name of vessel.	Where surveyed.	Date of survey.
Richmond	League Island	July 9, 1896.
Charleston	Mare Island	August 1 to 31, 1896.
Thetis	do	August 13 to 17, 1896.
Ericsson	New York	August 20, 1896.
Monongahela	Annapolis	September 22, 1896.
Monterey	Mare Island	October 9, 1896.
Michigan	Detroit	October 10, 1896.
Essex	New York	October 6 to 15, 1896.
Newark	Norfolk	November 2 to 7, 1896. April 1 to 30, 1897.
Castine	do	December 1, 1896.
Raleigh	do	February 15 to 19, 1897.
Alliance	New York	February 19, 1897.
Maine	do	May 17, 1897.
Detroit	do	June 4, 1897.
Pensacola	Mare Island	August 3 to 15, 1896.

TURRET TURNING GEAR.

A question which has received a great deal of consideration during the past year, and which has been the subject of much discussion, is that of the most desirable and efficient power for turning turrets.

With all nations, and particularly with this country, the question of turret turning gear is largely in an experimental stage, and opinions differ as to which is the most desirable. The original designs of turrets naturally provided for steam turning gear, receiving its motive power direct from the main boilers. In more recent years hydraulic, pneumatic, and electrical motors have been put forward, and each system has been given a trial on one or more ships.

Of the three systems, the greatest confidence thus far has been placed in the hydraulic gear, both in this country and abroad, and it has been most generally installed, particularly for heavy turrets. The *Monterey* was the first vessel in our Navy completed with hydraulic turning gear for turrets.

The pneumatic gear has probably received the most thorough and satisfactory test in this country, having been installed in the 10-inch turrets of the monitor *Terror* for the control of all motions, including turning. The contract for this system on the *Terror* was made as early as April, 1888, but unfortunate delays in the completion, both of the ship itself and of the individual system, resulted in many portions of the system being practically antiquated by the time it was ready for test. Furthermore, lack of data and experience in drawing up the original designs, together with a desire to produce as nearly a perfect mechanism as possible, resulted in numerous alterations and improvements before the completion of the contract.

The official report of tests on this system indicates a sensitive and readily controlled motive power, satisfactory, with the exception of a few slight defects, and with certain natural advantages as to cleanliness, low temperature of released air, etc.

Electrical turning gear has been adopted by the English, French, Russian, and German navies for small turrets, and by the French and Russians for the larger turrets of some of their recent vessels, each, however, still also using hydraulic gear for heavy turrets. The only departure by the English, apparently, is an experiment for assisting the hand turning gear by means of a 5-horse power electric motor in the case of the heavy turrets of the *Prince George.*

In January, 1896, the Department decided, in order to procure the best possible information as to the comparative merits of steam and electrical turning gears, to install both on the cruiser *Brooklyn*, two 8-inch turrets being operated by steam and two by electricity. Thus far the results obtained seem to favor the electrical mechanism, the principal advantage being in the certainty and accuracy with which it can be operated.

The Department has since decided to equip battle ships 5 and 6, *Kearsarge* and *Kentucky*, with electrical motors throughout the turrets, for controlling all operations, and as this includes 13-inch turrets superimposed with 8-inch turrets, the test is the most severe that has yet been applied by any Government, and, if successful, will no doubt establish the superiority of the electrical mechanism. Nevertheless, considerable experiment is involved in this case, and the Bureau has thus far urged that it be confined to these vessels until some definite data are obtained, although it believes that the electrical system is probably capable of greater progress and improvement than any other now in use.

As a matter of general information, the Bureau gives on the following page a table showing the system installed in each turreted vessel of the United States Navy.

Type of turning gear for turrets.

Name of vessel.	Type.	Number and character of turret.	Character of turret turning gear.	Remarks.
Indiana	Battle ship	Two 13-inch and four 8-inch.	Steam for all	
Massachusetts	do	do	do	
Oregon	do	do	Steam for 8-inch; hydraulic for 13-inch.	
Iowa	do	Two 12-inch and four 8-inch.	Steam for 8-inch; hydraulic for 12-inch.	
Kearsarge	do	Two 13-inch and two 8-inch superposed.	Electric	
Kentucky	do	do	do	
Alabama	do	Two 13-inch	Hydraulic	
Illinois	do	do	do	
Wisconsin	do	do	do	
Maine	do	Two 10-inch	do	
Texas	do	Two 12-inch	do	
Monterey	Monitor	One 12-inch and one 10-inch.	do	The first vessel commissioned with hydraulic gear for turrets.
Miantonomoh	do	Two 10-inch	Steam	
Terror	do	do	Pneumatic	Contract made for pneumatic gear Apr. 25, 1888.
Monadnock	do	do	Hydraulic	
Amphitrite	do	do	do	
Puritan	do	Two 12-inch	do	
New York	Armored cruiser	Two 8 inch	Steam	
Brooklyn	do	Four 8-inch	Two by steam; two by electricity.[a]	The first to have electric gear.
Olympia	Protected cruiser	Two 8-inch	Steam	

[a] Forward and starboard turrets, electricity; after and port turrets, steam.

SHIPS IN RESERVE.

The practice adopted by the Department recently of placing in reserve such vessels as it deemed inadvisable for any reason to retain in active commission, with a complement of officers and crew for each, sufficient to maintain the vessel in condition for service, appeals to the Bureau as a wise policy for the Government to pursue. The modern man-of-war, with its complicated drainage, ventilation, and other auxiliary systems, requires constant attention. The policy adopted insures the proper preservation of these systems in a manner that could not otherwise obtain, and with a minimum expenditure of funds.

REPAIR SHOPS AT PORT ROYAL AND PUGET SOUND.

The appropriation of $50,000 for machinery and machine tools for the construction and repair shops at the naval station, Port Royal, included in the act for the fiscal year ending June 30, 1898, became available on July 1, 1897. Bids for about $40,000 worth of tools under this appropriation were opened in the Bureau of Supplies and Accounts on August 3, 1897, and at the present time foundations, etc., are being prepared to receive the machinery. In six months these shops should be properly equipped to do a variety of repair work in case the necessity should arise.

The Bureau includes an item of $50,000 in its estimate for "repairs and improvements to navy-yard plants," for fitting up in a similar manner the shops recently built at Puget Sound Naval Station, believing it advisable that they should be equipped as promptly as possible for any emergency that may arise, for the reason that the dock at this station is the only one on the west coast at the present time capable of receiving our battle ships.

In this connection, the Bureau ventures to refer to the report of the "Navy-Yard Site Commission," of 1889, recommending Algiers, Louisiana, as the most suitable location on the Gulf Coast for the establishing of a Naval Station and dry docks, which recommendation is believed worthy of further consideration.

DRY DOCKS.

Serious inconvenience has been experienced during the past six months through the lack of proper docking facilities for first-class battle ships. Had there been a rupture in the peace relations of this country, what has been an inconvenience would have become a positive calamity.

The grave necessity for more dry docks of a capacity to take our largest battle ships has been fully demonstrated. In their annual reports relative to the improvement of plants at navy-yards, as will be seen by reference to the extracts from these reports (see pp. 401, 406, and 408), the naval constructors at Boston, Norfolk, and Mare Island have each strongly recommended the building of an additional dry dock at the yard at which he is stationed.

The Bureau believes that the necessity for an additional dock is most urgent at the Mare Island Yard, for the reasons stated by the naval constructor. On this coast, dry docks are urgently needed at Portsmouth and Boston, and a larger dock at Norfolk and League Island would be of decided advantage. The Bureau believes that five large additional docks, located as suggested above, would be none too many, and has to recommend, further, that no expense should be spared in obtaining convenient, efficient, substantial, and economical structures, and such as can be ready for use within two years.

EXPERIMENTAL MODEL TANK.

The naval appropriation act, approved March 3, 1897, made immediately available the sum of $92,500 for the completion of the model tank at the navy-yard, Washington. Under this appropriation plans and specifications were completed and bids invited for the construction of the basin and building in accordance therewith. The bids were opened in this Bureau on June 7, 1897, and covered proposals from fifteen reliable firms from various cities. The circular inviting proposals, together with a schedule of the bids received, is given on page 399. The contract was awarded to the lowest bidders, the Penn Bridge Company, of Beaver Falls, Pa., at $50,000, and at the present date the work under the contract is well in hand. Designs and plans for the towing apparatus, recording mechanism, etc., are now being prepared with a view to their installation as soon as possible after the completion and acceptance of the tank.

The acquisition of an experimental tank is a source of immense gratification to the Bureau, which has advocated its construction for nearly ten years. It will undoubtedly prove of the greatest value to the Bureau in connection with its work, as well as to the general shipbuilding interests in this country, and it can be confidently stated, moreover, that the tank when completed will be the largest and best equipped in the world.

NAVAL SUPPLY FUND.

The Bureau has reason to believe that the extension of the naval supply fund authorized by the last Congress will work to an immense advantage as regards the prompt and efficient execution of repairs, and strongly urges the continuance of the system.

Under the direction of the Bureau, the naval constructors at the various yards have given special attention to the preparation of lists of material considered desirable to be carried under the naval supply fund, and the purchase of this material will remove a long-standing impediment to the prompt completion of repairs to vessels at navy-yards.

CARE AND PRESERVATION OF TORPEDO BOATS.

By the end of the present fiscal year the Government should have no less than fifteen torpedo boats in condition for service. The importance of making suitable provision for the preservation of these boats was pointed out in the Bureau's last annual report, which recommended that Congress be asked to appropriate $100,000 for beginning the work.

With an increasing fleet of torpedo boats, the probable policy will be to keep only a sufficient number in commission to provide a proper training for officers and men and such maneuvers as may be considered necessary and suitable. The remainder will be in reserve and must be kept in good condition, ready for service at short notice. To do this most economically, and to prolong the life of the boats as far as possible, they should be kept out of the water and under cover. With their light scantlings and fittings, deterioration is apt to be rapid.

In order that necessary repairs may be made on torpedo boats while hauled out, the shed and appliances for hauling out should be located at a navy-yard. Plans have been prepared, under the direction of the naval constructors, at the several yards, showing the best location and the proposed arrangement for landing and stowing the boats. With the aid of these plans, a definite arrangement could be decided upon and work begun without delay.

Recent experience with torpedo boats has shown that docking for cleaning and painting is a frequent necessity. Since commissioning on February 20, 1897, the *Porter* has been docked five times. The expense of docking a torpedo boat, so far as preparing the dock, pumping, and maintenance in the dock is concerned, is almost as great as for a large vessel. Moreover, a dock is not always available for the purpose, particularly when the docking is for the making of any extensive repairs. As will be seen from the report of the constructor at the navy-yard, New York (see p. 390), it was found necessary to haul the *Ericsson* out on a private marine railway in order to repair the damage incurred during the accident to dock No. 2 at that yard in August, 1896.

There seems no doubt, therefore, of the growing necessity of the proposed arrangement, and it is urged that the special attention of Congress be invited to this matter. The navy-yards Boston and Mare Island are recommended as affording the most suitable locations on their respective coasts.

ARMOR FOR BATTLE SHIPS.

The question of supplying armor does not come under the cognizance of this Bureau, which has therefore no comment or recommendation to make in connection with it, except to suggest that the recent developments in the armor question have made it very evident that the Department should no longer make separate contracts for ships and for their armor. The Bureau believes that a single contract would be more acceptable to the shipbuilders and more satisfactory and advantageous to the Government.

In a letter addressed to the Secretary of the Navy, under date of September 6, 1895, to which attention is respectfully invited, the Bureau pointed out, at some length, the difficulties attached to the present system, showing that the Department was forced to bear the brunt of all errors or delays, and frequently the expense attendant thereon. The armor contractors hold the Department responsible for delays or errors in plans or moulds, while the ship contractors place the responsibility for discrepancies in plates or for delay in their delivery upon the Department, and the resultant correspondence and controversy only aggravates the difficulty.

The Bureau believes that the lack of direct responsibility between contractors for ships and armor has been, and will continue to be, the source of endless trouble, and is of the opinion, further, that even with the present status of the armor question, there would be more reason to hope for an early settlement if the Department had to deal only with the shipbuilders.

NAVAL MILITIA.

Considerable Government property has been transferred to the Naval Militia during the past fiscal year. This organization is gradually becoming an important element of the volunteer forces of the nation, and it is respectfully suggested that Congress should be asked to make a liberal allowance for the maintenance of the property it has acquired, in order that the appropriations for the regular service may not be unduly taxed.

The more important items of transfer since July 1, 1896, are tabulated below:

State to which transferred.	Items.	Date authorizing transfer.
New York	Steam cutter No. 197	June 16, 1897.
New Jersey	Colomé leak stopper, 3 sets supplied to each of the five monitors loaned.	
Connecticut		
California		
North Carolina		
Georgia		
New Jersey	Balsa, loaned for the Ajax.	
Do	Cutter No. 129 from navy-yard, Norfolk.	
Massachusetts	Steam cutter No. 127 from navy-yard, Boston, Mass	Mar. 18, 1897.
Do	Steam cutter No. 71, from navy yard, Boston, Mass	Ordered to be loaned June 16, 1897.
Maryland	Two 28-foot cutters turned in from Newark at navy-yard, Norfolk.	Apr. 23, 1897.
Connecticut	32-foot barge, turned in from Chicago, at navy-yard, New York.	Aug. 28, 1897.
Do	30-foot cutter, turned in from Chicago, at navy-yard, New York.	Do.
Do	29 foot whaleboat, turned in from New York, at navy-yard, New York.	Do.
Do	30-foot steam whaleboat No. 159, turned in to store at navy-yard, New York.	July 15, 1897.
New York (Brooklyn)	30 foot steam cutter No. 190, turned in from Brooklyn, at navy-yard, New York.	July 10, 1897.
Do	28-foot whaleboat, whaleboat, gig, whaleboat gig, whaleboat (papier mâché).	July 15, 1897.
Florida	30-foot cutter, turned in from Constellation, at navy-yard, Norfolk, Va.	Ordered to be loaned Aug. 5, 1897.
California	Dinghy, Naval Militia authorized to turn in old dinghy and get another from navy-yard, Mare Island.	Apr. 14, 1897.
New York (Rochester)	Gangway ladder and fittings, 14 feet long, turned in from Indiana, at navy-yard, New York.	July 19, 1897
New York	One bible-back duplex pump, 3¼ inches diameter, discharge operated by double brakes.	Do.

CORPS OF NAVAL CONSTUCTORS.

In concluding the main body of its report for the fiscal year the Bureau ventures to point out that its duties and those of the officers constituting the construction corps are becoming rapidly more arduous and comprehensive and the responsibility attached thereto more marked. The funds annually expended under cognizance of the Bureau are in direct evidence of this fact, while the official register of the Navy Department shows that the number of officers sharing this responsibility and doing duty under the Bureau, both in the Department and at the various yards, is relatively small.

In recent years the Department has realized this fact, and has been liberal in its assignments to the construction corps. The Bureau desires to appeal for a continuance of this policy, not only as to the lower grades, but as to the grade of naval constructor as well. The average relative rank of officers in this corps as compared with other corps and with the responsible duties performed is unmistakably low.

The following tables give the dimensions and other particulars of all vessels belonging to the United States Navy built and building or authorized, together with their present condition or station:

Table of vessels of the

ARMORED STEEL VESSELS—

Name.	Type.	Rig.	By whom and where built or building.	Condition or service.
Alabama	Seagoing coast-line battle ship. Two 13″ barbette turrets.	Two military masts.	Wm. Cramp & Sons, Philadelphia, Pa.	Building
Illinois	Seagoing coast-line battle ship. Two 13″ barbette turrets.	Two military masts.	Newport News S. B. & D. D. Co., Newport News, Va.	Building
Indiana	Seagoing coast-line battle ship. 2 13″ barbette turrets. 4 8″ barbette turrets.	One military mast.	Wm. Cramp & Sons, Philadelphia, Pa.	North Atlantic Station.
Iowa	Seagoing coast-line battle ship. 2 12″ barbette turrets. 4 8″ barbette turrets.	One military mast.	Wm. Cramp & Sons, Philadelphia, Pa.	North Atlantic Station.
Kearsarge	Seagoing coast-line battle ship. 2 13″ barbette turrets. 2 8″ turrets superposed.	Two military masts.	Newport News S. B. & D. D. Co., Newport News, Va.	Building
Kentucky	Seagoing coast-line battle ship. 2 13″ barbette turrets. 2 8″ turrets superposed.	Two military masts.	Newport News S. B. & D. D. Co., Newport News, Va.	Building
Massachusetts	Seagoing coast-line battle ship. 2 13″ barbette turrets. 4 8″ barbette turrets.	One military mast.	Wm. Cramp & Sons, Philadelphia, Pa.	North Atlantic Station.
Oregon	Seagoing coast-line battle ship. 2 13″ barbette turrets. 4 8″ barbette turrets.	One military mast.	Union Iron Works, San Francisco, Cal.	Pacific station
Wisconsin	Seagoing coast-line battle ship. Two 13″ barbette turrets.	Two military masts.	Union Iron Works, San Francisco, Cal.	Building

SECOND-CLAS

Maine	Armored battle ship. Two 10″ barbette turrets.	Two military masts.	U. S. navy-yard, Brooklyn, N. Y.	North Atlantic Station.
Texas	Armored battle ship. Two 12″ turrets.	Two military masts.	U. S. navy-yard, Norfolk, Va.	North Atlantic Station.

ites Navy.

ASS BATTLE SHIPS.

		ly equipped ready, all stores on board. al coal supply.														
		Extreme breadth.		Mean draft.		Displacement.	Gross tonnage.	Net tonnage.	Type of engine.	Speed in knots per hour.	Maximum indicated horse-power.	Tons per inch immersion at normal draft.	Normal coal supply.	Bunker capacity.	Maximum draft aft at lowest point of keel. Ship ready for sea, bunkers full.	
	n.	Ft.	In.	Ft.	In.	Tons.	Tons.	Tons.				Tons.	Tons.	Tons.	Ft.	In.
	0	72	2½	23	6	*11,525	6,802.12	5,546.43	Twin screw vertical triple expansion.	†16	†10,000	47.25	800	1,200	....	
	0	72	2½	23	6	*11,525	6,802.12	5,546.43	Twin screw vertical triple expansion.	†16	†10,000	47.25	800	1,200	....	
48	0	69	3	24	0	10,288	5,289.64	4,328.35	Twin screw vertical triple expansion.	15.547	9,738	43	400	1,597	27	1⅜
360	0	72	2½	24	0	11,340	6,294.76	5,434.38	Twin screw vertical triple expansion.	17.087	12,105	45.95	625	1,795	26	9⅜
368	0	72	2½	23	6	11,525	6,831.81	5,568.35	Twin screw vertical triple expansion.	†16	†10,000	47.25	410	1,210	....	
368	0	72	2½	23	6	11,525	6,831.81	5,568.35	Twin screw vertical triple expansion.	†16	†10,000	47.25	410	1,210	....	
348	0	69	3	24	0	10,288	5,289.64	4,328.35	Twin screw vertical triple expansion.	16.21	10,403	43	400	1,597	27	1⅜
348	0	69	3	24	0	10,288	5,289.64	4,444.82	Twin screw vertical triple expansion.	16.79	11,111	43	400	1,594	27	1⅜
368	0	72	2½	23	6	*11,525	6,802.12	5,546.43	Twin screw vertical triple expansion.	†16	†10,000	47.25	800	1,200	....	

BATTLE SHIPS.

318	0	57	0	21	6	6,682	3,933.25	3,120.36	Twin screw vertical triple expansion.	17.45	9,293	32.32	400	896	22	
301	4	64	1	22	6	6,315	4,050.31	3,179.29	Twin screw vertical triple expansion.	17.8	8,610	30.22	500	850	24	

* With two-thirds of ammunition and two-thirds of stores.

† Estimated.

Table of vessels of the United

ARMORED STEEL VESSELS—

Name.	Batteries.			Armor.			Protective deck.		Water-line protection, obturating material.	
	Main.	Secondary.	Torpedo tubes.	Sides.	Turrets.	Barbettes.	Slopes.	Flat.	Cocoa, capacity in cubic feet.	Cornpith, capacity in cubic feet.
				Inches.	*In.*	*In.*	*Inches.*	*In.*		
Alabama	4 13″ B. L. R 14 6″ R. F. guns.	16 6-pdr. R. F. 4 1-pdr. R. F. 1 Colt 2 field guns	4 Long White-head.	Top 16½ Bottom 9½ Water-line 13¾	17 15	15 10	For'd 3″ Aft 4″	2¾	....	*12, 464
Illinois	4 13″ B. L. R 14 6″ R. F. guns.	16 6-pdr. R. F. 4 1-pdr. R. F. 1 Colt 2 field guns	4 Long White-head.	Top 16½ Bottom 9½ Water-line 13¾	17 15	15 10	For'd 3″ Aft 4″	2¾	....	*12, 464
Indiana	4 13″ B. L. R 8 8″ B. L. R 4 6″ B. L. R	20 6-pdr. R. F. 6 1-pdr. R. F. 4 Gatlings	2 White-head.	18	15 6	17 8 6	....	2¾	15, 814. 40	....
Iowa	4 12″ B. L. R 8 8″ B. L. R 6 4″ R. F. guns.	20 6-pdr. R. F. 4 1-pdr. R. F. 4 Colts 2 field guns	4 Howell	14	15 8 7	15 8 & 6	....	2¾	*19, 395. 41	....
Kearsarge	4 13″ B. L. R 4 8″ B. L. R 14 5″ R. F. guns.	20 6-pdr. R. F. 6 1-pdr. R. F. 4 Colts 2 field guns	4 Long White-head.	Top 16½ Bottom 9½ Water-line 13¾	17 15 11 9	15 12	For'd 3″ Aft 5″	2¾	....	*10, 806. 74
Kentucky	4 13″ B. L. R 4 8″ B. L. R 14 5″ R. F. guns.	20 6-pdr. R. F. 6 1-pdr. R. F. 4 Colts 2 field guns	4 Long White-head.	Top 16½ Bottom 9½ Water-line 13¾	17 15 11 9	15 12	For'd 3″ Aft 5″	2¾	....	*10, 806. 74
Massachusetts.	4 13″ B. L. R 8 8″ B. L. R 4 6″ B. L. R	20 6-pdr. R. F. 4 1-pdr. R. F. 4 Gatlings 2 field guns	3 White-head.	18	15 6	17 8 6	....	2¾	15, 814. 40	....
Oregon	4 13″ B. L. R 8 8″ B. L. R 4 6″ B. L. R	20 6-pdr. R. F. 6 1-pdr. R. F. 4 Gatlings 2 field guns	3 White-head.	18	15 6	17 8 6	....	2¾	15, 814. 40	....
Wisconsin	4 13″ B. L. R 14 6″ R. F. guns.	16 6-pdr. R. F. 4 1-pdr. R. F. 1 Colt 2 field guns	4 Long White-head.	Top 16½ Bottom 9½ Water-line 13¾	17 15	15 10	For'd 3″ Aft 4″	2¾	....	*12, 464

SECOND-CLAS

Name.	Main.	Secondary.	Torpedo tubes.	Sides.	Turrets.	Barbettes.	Slopes.	Flat.	Cocoa, capacity in cubic feet.	Cornpith, capacity in cubic feet.
Maine	4 10″ B. L. R 6 6″ B. L. R	7 6-pdr. R. F. 8 1-pdr. R. F. 4 Gatlings	4 White-head.	12	8	12 10	....	2	4, 737	....
Texas	2 12″ B. L. R 6 6″ B. L. R	12 6-pdr. R. F. 6 1-pdr. R. F. 4 37mm H. R. C 2 Gatlings	2 White-head.	12	12	....	....	2	....	....

* Estimated.

tes Navy—Continued.

IRST-CLASS BATTLE SHIPS.

Complement. Officers.	Complement. Men.	Contract cost of hull and machinery.	Date of act authorizing the building.	Contract signed.	Keel laid.	Launched.	Contract date of completion.	Date of first commission.
40	449	$2,650,000	June 10, 1896	Sept. 24, 1896	Dec. 1, 1896	....	Sept. 24, 1899	....
40	449	2,595,000	June 10, 1896	Sept. 26, 1896	Feb. 10, 1897	....	Sept. 26, 1899	....
32	441	3,020,000	June 30, 1890	Nov. 19, 1890	May 7, 1891	Feb. 28, 1893	Nov. 19, 1893	Nov. 20, 1895
36	469	3,010,000	July 19, 1892	Feb. 11, 1893	Aug. 5, 1893	Mar. 28, 1896	Feb. 11, 1896	June 16, 1897
40	471	2,250,000	Mar. 2, 1895	Jan. 2, 1896	June 30, 1896	....	Jan. 2, 1899	....
40	471	2,250,000	Mar. 2, 1895	Jan. 2, 1896	June 30, 1896	....	Jan. 2, 1899	....
32	441	3,020,000	June 30, 1890	Nov. 18, 1890	June 25, 1891	June 10, 1893	Nov. 18, 1893	June 10, 1896
32	441	3,180,000	June 30, 1890	Nov. 19, 1890	Nov. 19, 1891	Oct. 26, 1893	Nov. 19, 1893	July 15, 1896
40	449	2,674,950	June 10, 1896	Sept. 19, 1896	Feb. 9, 1897	....	Sept. 19, 1899	....

BATTLE SHIPS.

Complement. Officers.	Complement. Men.	Contract cost of hull and machinery.	Date of act authorizing the building.	Contract signed.	Keel laid.	Launched.	Contract date of completion.	Date of first commission.
31	343	†2,500,000	Aug. 3, 1886	....	Oct. 17, 1888	Nov. 18, 1890	....	Sept. 17, 1895
30	359	†2,500,000	Aug. 3, 1886	....	June 1, 1889	June 28, 1892	....	Aug. 15, 1895

† Limit of cost.

Table of vessels of the

ARMORED STEEL VES

Name.	Type.	Rig.	By whom and where built or building.	Condition or service.
Brooklyn	Armored cruiser. Four 8" barbette turrets.	Two military masts.	Wm. Cramp & Sons, Philadelphia, Pa.	Unassigned.....
New York......	Armored cruiser. Two 8" barbette turrets.	Two military masts.	Wm. Cramp & Sons, Philadelphia, Pa.	Flagship, North Atlantic Station.

ARMORED

Katahdin	Harbor defense ram...	None	Bath Iron Works, Bath, Me.	Repairing at League Island, Pa.

ARMORED

Name.	Batteries.			Armor.			Protective deck.		Water-line protection—obturating material.	
	Main.	Secondary.	Torpedo tubes.	Sides.	Turrets.	Barbettes.	Slopes.	Flat.	Cocoa capacity in cubic feet.	Corn pith, capacity in cubic feet.
				Inches.	*In.*	*In.*	*In.*	*In.*		
Brooklyn	8 8" B. L. R... 12 5" R.F. guns	12 6-pdr. R.F.. 4 1-pdr. R.F... 4 Colts......... 2 field guns...	4 Whitehead.	3	5½	8 and 4	6	3	24,789.33	....
New York ...	6 8" B. L. R... 12 4" R.F. guns	8 6-pdr. R.F... 2 1-pdr. R.F... 4 Gatlings .... 2 field guns...	2 Whitehead.	4	5½	10	6	3	[1]25,396.66	....

ARMORED

Katahdin.....	4 6-pdr. R. F	....	....	6 3	....	....	6	2	....	....

[1] Estimated.

United States Navy—Continued.

SELS—ARMORED CRUISERS.

Ship fully equipped ready for sea, all stores on board. Normal coal supply.												
Length on load water line.	Extreme breadth.	Mean draft.	Displacement.	Gross tonnage.	Net tonnage.	Type of engine	Speed in knots per hour.	Maximum indicated horse-power.	Tons per inch immersion at normal draft.	Normal coal supply.	Bunker capacity.	Maximum draft aft at lowest point of keel. Ship ready for sea, bunkers full.
Ft. In.	*Ft. In.*	*Ft. In.*	*Tons.*	*Tons.*	*Tons.*				*Tons.*	*Tons.*	*Tons.*	*Ft. In.*
400 6	64 8¼	24 0	9,215	6,097.38	4,596.40	Twin screw vertical triple expansion.	21.91	18,769	41.19	900	1,461	26 2
380 6½	64 10	23 3½	8,200	5,901.42	4,295.50	Twin screw vertical triple expansion.	21	17,401	39.50	750	1,290	26 8

RAM.

250 9	43 5	15 0	2,155	855.87	582.0	Twin screw vertical triple expansion.	16.11	5,068	19.16	175	192.70	16 0

CRUISERS.

Complement.		Contract cost of hull and machinery.	Date of act authorizing the building.	Contract signed.	Keel laid.	Launched.	Contract date of completion.	Date of first commission.
Officers.	Men.							
46	476	$2,986,000	July 19, 1892	Feb. 11, 1893	Aug. 2, 1893	Oct. 2, 1895	Feb. 11, 1896	Dec. 1, 1896
40	516	2,985,000	Sept. 7, 1888	Aug. 28, 1890	Sept. 30, 1890	Dec. 2, 1891	Jan. 1, 1893	Aug. 1, 1893

RAM.

7	90	930,000	Mar. 2, 1889	Jan. 28, 1891	July 1891	Feb. 4, 1893	July 28, 1892	Feb. 20, 1896

Table of vessels of the United

ARMORED VESSELS—DOUBLE

Name.	Type.	Rig.	By whom and where built or building.	Condition of service.
Amphitrite	Iron low freeboard coast-defense monitor. Two steel barbette turrets.	One military mast.	Harlan & Hollingsworth, Wilmington, Del.	Gunnery training ship.
Miantonomoh	Iron low freeboard coast-defense monitor. Two compound armor turrets.	One military mast.	John Roach, Chester, Pa.	In ordinary, League Island, Pa.
Monadnock	Iron low freeboard coast-defense monitor. Two steel barbette turrets.	One military mast.	Continental Iron Works, Vallejo, Cal.	Pacific Station.
Monterey	Steel low freeboard monitor. Two steel barbette turrets.	One military mast.	Union Iron Works, San Francisco, Cal.	Pacific Station.
Puritan	Iron low freeboard coast-defense monitor. Two steel barbette turrets.	One military mast.	John Roach, Chester, Pa.	North Atlantic Station.
Terror	Iron low freeboard coast-defense monitor. Two steel turrets.	One military mast.	Wm. Cramp & Sons, Philadelphia, Pa.	North Atlantic Station.

Name.	Batteries.			Armor.			Protective deck.	
	Main.	Secondary.	Torpedo tubes.	Sides.	Turrets.	Barbettes.	Slopes.	Flat.
				Inches.	*Inches.*	*Inches.*	*Inches.*	*Inch.*
Amphitrite	4 10″ B. L. R. 2 4″ R. F. guns	2 6-pdr. R. F 2 3-pdr. R. F 2 37mm H. R. C 2 1-pdr. R. F. G.	......	9 5	7½	11½	......	1¾
Miantonomoh	4 10″ B. L. R.	2 6-pdr. R. F. G 2 3-pdr. R. F. G 2 1-pdr. R. F. G	......	7	11½	......	......	1¾
Monadnock	4 10″ B. L. R. 2 4″ R. F. guns	2 6-pdr. R. F 2 3-pdr. R. F 2 37mm H. R. C 2 1-pdr. R. F. G	......	9 5	7½	11½	......	1¾
Monterey	2 12″ B. L. R. 2 10″ B. L. R.	6 6-pdr. R. F 4 1-pdr. R. F 2 Gatlings	......	13 8 6	For'd 8″ Aft 7½″.	For'd 13″ Aft 11½″	......	3
Puritan	4 12″ B. L. R. 6 4″ R. F. guns	6 6-pdr. R. F 2 37mm H. R. C 2 1-pdr. R. F	......	14 10 6	8	14	......	2
Terror	4 10″ B. L. R.	2 6-pdr. R. F 2 3-pdr. R. F 2 37mm H. R. C 2 1-pdr. R. F 2 Gatlings	......	7	11½	......	......	1¾

***States Navy*—Continued.**

TURRETED MONITORS.

Ship fully equipped ready for sea, all stores on board. Normal coal supply.																
Length on load water line.		Extreme breadth.		Mean draft.		Displacement.	Gross tonnage.	Net tonnage.	Type of engine.	Speed in knots per hour.	Maximum indicated horse-power.	Tons per inch immersion at normal draft.	Normal coal supply.	Bunker capacity.	Maximum draft aft at lowest point of keel. Ship ready for sea, bunkers full.	
Ft.	*In.*	*Ft.*	*In.*	*Ft.*	*In.*	*Tons.*	*Tons.*	*Tons.*				*Tons.*	*Tons.*	*Tons.*	*Ft.*	*In.*
259	6	55	6	14	6	3,990	1,536.15	1,207.75	Twin screw inclined compound.	10.5	1,600	27.67	250	250	14	7½
259	6	55	6	14	6	3,990	1,330.65	970.96	Twin screw inclined compound.	10.5	1,426	27.67	250	260	15	0
259	6	55	6	14	6	3,990	1,536.15	1,207.75	Twin screw horizontal triple expansion.	12	3,000	27.67	250	250	14	7½
256	0	59	0	14	10	4,084	1,485.59	1,102.32	Twin screw vertical triple expansion.	13.6	5,244	26.74	200	236	15	4
289	6	60	1½	18	0	6,060	2,144.18	1,518.19	Twin screw horizontal compound.	12.4	3,700	33.64	400	410	18	6
259	6	55	6	14	6	3,990	1,515.65	1,127.62	Twin screw inclined compound.	10.5	1,600	27.67	250	250	15	4

Complement.		Contract cost of hull and machinery.	Date of act authorizing building or completion.	Contract signed.	Keel laid.	Launched.	Contract date of completion.	Date of first commission.
Officers.	Men.							
26	156	(*)	Mar. 3, 1885 Aug. 3, 1886 Mar. 3, 1887	....	1874	June 7, 1883	....	Apr. 23, 1895
13	136	(*)	Mar. 3, 1885 Aug. 3, 1886 Mar. 3, 1887	....	1874	Dec. 5, 1876	....	Oct. 27, 1891
26	157	(*)	Mar. 3, 1885 Aug. 3, 1886 Mar. 3, 1887	....	1875	Sept. 19, 1883	....	Feb. 20, 1896
19	176	$1,628,950	Mar. 3, 1887	June 14, 1889	July 1889	Apr. 28, 1891	June 14, 1892	Feb. 13, 1893
22	208	(*)	Mar. 3, 1885 Aug. 3, 1886 Mar. 3, 1887	....	1875	Dec. 6, 1882	....	Dec. 10, 1896
26	151	(*)	Mar. 3, 1885 Aug. 3, 1886 Mar. 3, 1887	....	1874	Mar. 24, 1883	....	Apr. 15, 1896

[*] Appropriation to complete Amphitrite, Miantonomoh, Monadnock, Puritan, and Terror, $3,178,046.

Table of vessels of the United

ARMORED VESSELS—SINGLE

Name.	Type.	Keel laid.	By whom and where built.	Condition.	Dimensions.			Displacement.	Indicated horse-power.
					Length between perpendiculars.	Breadth.	Mean draft.		
					Feet.	*Ft. In*	*Ft. In*	*Tons.*	
Ajax	Low free-board single-turret monitor.	1862	Snowdon & Mason, Pittsburg, Pa.	Camden, N. J., for use of naval militia.	225	43 8	13 6	2,100	340
Comanche	do	1862	Donahue, Ryan & Secor, Jersey City, N. J.	San Francisco, Cal., for use of naval militia.	200	46 0	11 6	1,875	340
Canonicus	do	1862	Harrison Loring, Boston, Mass.	In ordinary, League Island, Pa.	225	43 8	13 6	2,100	340
Catskill	do	1862	John Ericsson, Brooklyn, N. Y.	do	200	46 0	11 6	1,875	340
Jason	do	1862	John Ericsson, Chester, Pa.	do	200	46 0	11 6	1,875	340
Lehigh	do	1862	do	do	200	46 0	11 6	1,875	340
Mahopac	do	1862	Z. & F. Secor, Jersey City, N.J.	do	225	43 8	13 6	2,100	340
Manhattan	do	1862	Perine, Secor & Co., Jersey City, N. J.	do	225	43 8	13 6	2,100	340
Montauk	do	1862	John Ericsson, Brooklyn, N. Y.	do	200	46 0	11 6	1,875	340
Nahant	do	1862	Harrison Loring, Boston, Mass.	do	200	46 0	11 6	1,875	340
Nantucket	do	1862	Atlantic Works, Boston, Mass.	Southport, N. C., for use of naval militia.	200	46 0	11 6	1,875	340
Passaic	do	1862	John Ericsson, Brooklyn, N. Y.	Brunswick, Ga., for use of naval militia.	200	46 0	11 6	1,875	340
Wyandotte	do	1862	Miles Greenwood, Cincinnati, Ohio.	For use of naval militia, Connecticut.	225	43 8	13 6	2,100	340

States Navy—Continued.

TURRET MONITORS (IRON).

Type of engine.	Speed in knots.	Batteries.		Armor.		Cost of hull and machinery.	Date of act authorizing the building.
		Main.	Secondary.	Sides.	Turret.		
				In.	*In.*		
Single screw grasshopper.	5 to 6	2 XV″ S. B.	None	5	10	$626, 582. 24	Apr. 17, 1862
.....do	5 to 6	.....do	.....do	5	11	613, 164. 98	Do.
.....do	6	.....do	2 12-pdr. H.	5	10	622, 963. 22	Do.
.....do	6	.....do	None	5	11	427, 766. 78	Do.
.....do	5 to 6	.....do	.....do	5	11	422, 766. 73	Do.
.....do	5 to 6	.....do	.....do	5	11	422, 726. 28	Do.
.....do	6	.....do	.....do	5	10	635, 374. 55	Do.
.....do	6	.....do	.....do	5	10	628, 879. 27	Do.
.....do	5 to 6	.....do	.....do			423, 027. 49	Do.
.....do	5 to 6	.....do	.....do		11	413, 515. 14	Do.
.....do	5 to 6	.....do	.....do			408, 091. 37	Do.
.....do	5 to 6	.....do	.....do			423, 171. 69	Do.
.....do	6	.....do	.....do	5	10	633, 327. 84	Do.

Table of vessels of the United

UNARMORED STEEL VESSELS—

Name.	Type.	Rig.	By whom and where built or building.	Condition or service.
Atlanta	Protected cruiser	Brig	John Roach & Sons, Chester, Pa.	Repairing at navy-yard, N. Y.
Baltimore	Protected cruiser	Two military masts.	Wm. Cramp & Sons, Philadelphia, Pa.	Repairing at Mare Island, Cal.
Boston	Protected cruiser	Brig	John Roach & Sons, Chester, Pa.	Asiatic Station.
Charleston	Protected cruiser	Two military masts.	Union Iron Works, San Francisco, Cal.	Repairing at Mare Island, Cal.
Chicago	Protected cruiser	Three-masted schooner.	John Roach & Sons, Chester, Pa.	Repairing at New York Navy-Yard.
Cincinnati	Protected cruiser	Two - masted schooner.	U. S. navy-yard, Brooklyn, N. Y.	South Atlantic Station.
Columbia	Protected cruiser	Two - masted schooner.	Wm. Cramp & Sons, Philadelphia, Pa.	In reserve at League Island, Pa.
Minneapolis	Protected cruiser	Two - masted schooner.	Wm. Cramp & Sons, Philadelphia, Pa.	In reserve at League Island, Pa.
Newark	Protected cruiser	Three-masted schooner.	Wm. Cramp & Sons, Philadelphia, Pa.	Repairing at navy-yard, Norfolk, Va.
Olympia	Protected cruiser	Two - masted schooner.	Union Iron Works, San Francisco, Cal.	Flagship Asiatic Station.
Philadelphia	Protected cruiser	Two - masted schooner.	Wm. Cramp & Sons, Philadelphia, Pa.	Flagship Pacific Station.
Raleigh	Protected cruiser	Two - masted schooner.	U. S. navy-yard, Norfolk, Va.	European Station.
San Francisco	Protected cruiser	Three-masted schooner.	Union Iron Works, San Francisco, Cal.	Flagship European Station.

Navy—Continued.

ROTECTED CRUISERS.

Ship fully equipped ready for sea, all stores on board. Normal coal supply.																	
Length on load water line.		Extreme breadth.		Mean draft.		Displacement.	Gross tonnage.	Net tonnage.	Type of engine.	Speed in knots per hour.	Maximum indicated horse-power.	Tons per inch immersion at normal draft.	Normal coal supply.	Bunker capacity.	Maximum draft aft at lowest point of keel. Ship ready for sea, bunkers full.	
Ft.	In.	Ft.	In.	Ft.	In.	Tons.	Tons.	Tons.					Tons.	Tons.	Ft.	In.
271	3	42	1¾	16	10	3,000	2,028.18	1,494.87	Single screw horizontal compound.	15.60	4,030	20.03	.....	490	21	0¾
327	6	48	7½	19	6	4,413	3,019.18	2,162.92	Twin screw horizontal triple expansion.	20.096	10,064	25.89	400	1,143.87	23	11½
271	3	42	1¾	16	10	3,000	2,028.18	1,494.87	Single screw horizontal compound.	15.60	4,030	20.03	.....	495.80	21	0¾
312	7	46	2	18	7	3,730	2,541.89	1,758.84	Twin screw horizontal compound.	18.20	6,666	23	328	757.70	21	8½
325	0	48	2	19	0	4,500	3,042.54	2,190.05	Twin screw slightly inclined triple expansion.	†18	†9,000	26.92	.....	831.94	22	6½
300	0	42	0	18	0	3,213	2,003.81	1,362.60	Twin screw vertical triple expansion	†19	†10,000	20.04	350	460.09	20	2½
412	0	58	2¼	22	6½	7,375	5,552.48	3,775.69	Triple screw vertical triple expansion.	22.8	18,509	36.87	750	1,670	25	7
412	0	58	2¼	22	6½	7,375	5,552.48	3,775.69	Triple screw vertical triple expansion.	23.073	20,862	36.87	750	1,891	25	7
311	7	49	2	18	9	4,098	2,761.18	2,072.70	Twin screw horizontal triple expansion.	19	8,869	25	400	809.46	22	7½
340	0	53	0½	21	6	5,870	4,011.89	2,797.00	Twin screw vertical triple expansion.	21.686	17,313	29.36	400	1,169.66	24	0¾
327	6	48	7½	19	2½	4,324	3,048.54	2,190.84	Twin screw horizontal triple expansion.	19.078	8,815	25.89	400	1,085.6	23	5
300	0	42	0	18	0	3,213	2,003.81	1,362.60	Twin screw vertical triple expansion.	†19	†10,000	20.04	350	460.09	20	2½
310	0	49	2	18	9	4,098	2,805.98	1,962.65	Twin screw horizontal triple expansion.	19.525	9,913	25	350	627.76	22	3½

† Estimated.

Table of vessels of the United

UNARMORED STEEL VESSELS—

Name.	Batteries.			Protective deck.		Water-line protection, obturating material.	
	Main.	Secondary.	Torpedo tubes.	Slopes.	Flat.	Cocoa, capacity in cubic feet.	Corn pith, capacity in cubic feet.
				Inches.	*Inches.*		
Atlanta	6 6″ R. F. guns 2 8″ B. L. R	2 6-pdr. R. F 2 3-pdr. R. F 6 1-pdr. R. F 2 Colts 1 field gun	....	1½	1½	....	....
Baltimore	4 8″ B. L. R 6 6″ B. L. R	4 6-pdr. R. F 2 3-pdr. R. F 2 1-pdr. R. F 4 37mm H. R. C 2 Colts 1 field gun	....	4	2½	....	....
Boston	6 6″ B. L. R 2 8″ B. L. R	2 6-pdr. R. F 2 3-pdr. R. F 2 1-pdr. R. F 2 47mm H. R. C 2 37mm H. R. C 2 Gatlings	....	1½	1½	....	....
Charleston	2 8″ B. L. R 6 6″ B. L. R	4 6-pdr. R. F 2 3-pdr. R. F 2 1-pdr. R. F 4 37mm H. R. C 2 Colts 1 field gun	....	3	2	....	....
Chicago	4 8″ B. L. R 14 5″ R. F. guns	7 6-pdr. R. F 2 1-pdr. R. F 2 Colts 1 field gun	....	1½	1½	....	....
Cincinnati	10 5″ R. F. guns 1 6″ B. L. R	8 6-pdr. R. F 2 1-pdr. R. F 2 Colts 1 field gun	2 Whitehead.	2½	1	6,970.88	....
Columbia	1 8″ B. L. R 2 6″ B. L. R 8 4″ R. F. guns	12 6-pdr. R. F 4 1-pdr. R. F 2 Colts 1 field gun	4 Whitehead.	4	2	9,829.12	....
Minneapolis	1 8″ B. L. R 2 6″ B. L. R 8 4″ R. F. guns	12 6-pdr. R. F 4 1-pdr. R. F 2 Colts 1 field gun	4 Whitehead.	4	2½	9,829.12	....
Newark	12 6″ R. F. guns	8 6-pdr. R. F 4 1-pdr. R. F 4 Colts 1 field gun	....	3	2	....	....
Olympia	10 5″ R. F. guns 4 8″ B. L. R. mounted in barbette turrets, armor 3½ and 4½ inches.	14 6-pdr. R. F 7 1-pdr. R. F 4 Gatlings 1 field gun	6 Whitehead.	4¾	2	11,333	....
Philadelphia	12 6″ B. L. R	4 6-pdr. R. F 4 3-pdr. R. F 2 1-pdr. R. F 3 37mm H. R. C 4 Gatlings 1 field gun	....	4	2½	....	....
Raleigh	10 5″ R. F. guns 1 6″ B. L. R	8 6-pdr. R. F 4 1-pdr. R. F 2 Gatlings 1 field gun	2 Whitehead.	2½	1	6,970.88	....
San Francisco	12 6″ B. L. R	4 6-pdr. R. F 4 3-pdr. R. F 2 1-pdr. R. F 3 37mm H. R. C 4 Gatlings 1 field gun	4 Whitehead.	3	2	....	....

States Navy—Continued.

PROTECTED CRUISERS.

Complement.		Contract cost of hull and machinery.	Date of act authorizing the building.	Contract signed.	Keel laid.	Launched.	Contract date of completion.	Date of first commission.
Officers.	Men.							
19	259	$617,000	Mar. 3, 1883	July 23, 1883	Nov. 8, 1883	Oct. 9, 1884	Jan. 23, 1885	July 19, 1886
36	350	1,325,000	Aug. 3, 1886	Dec. 17, 1886	May 5, 1887	Oct. 6, 1888	June 17, 1888	Jan. 7, 1890
19	259	619,000	Mar. 3, 1883	July 23, 1883	Nov. 15, 1883	Dec. 4, 1884	Jan. 23, 1885	May 2, 1887
20	286	1,017,500	Mar, 3, 1885	Dec. 28, 1886	Jan. 20, 1887	July 19, 1888	June 28, 1888	Dec. 26, 1889
33	376	889,000	Mar. 3, 1883	July 26, 1883	Dec. 29, 1883	Dec. 5, 1885	Jan. 26, 1885	Apr. 17, 1889
20	294	*1,100,000	Sept. 7, 1888	....	Jan., 1890	Nov. 10, 1892	....	June 16, 1894
30	†79 447	2,725,000	June 30, 1890	Nov. 19, 1890	Dec. 30, 1890	July 26, 1892	May 19, 1893	Apr. 23, 1894
30	†79 447	2,690,000	Mar. 2, 1891	Aug. 31, 1891	Dec. 16, 1891	Aug. 12, 1893	Aug. 31, 1893	Dec. 13, 1894
34	350	1,248,000	Mar. 3, 1885	Oct. 27, 1887	June 12, 1888	Mar. 19, 1890	Oct. 27, 1889	Feb. 2, 1891
34	416	1,796,000	Sept. 7, 1888	July 10, 1890	June, 1891	Nov. 5, 1892	Apr. 1, 1893	Feb. 5, 1895
34	350	1,350,000	Mar. 3, 1887	Oct. 27, 1887	Mar. 22, 1888	Sept. 7, 1889	Oct. 27, 1889	July 28, 1890
20	293	*1,100,000	Sept. 7, 1888	....	Dec., 1889	Mar. 31, 1892	....	Apr. 17, 1894
33	350	1,428,000	Mar. 3, 1887	Oct. 26, 1887	Aug., 1888	Oct. 26, 1889	Oct. 26, 1889	Nov. 15, 1890

* Limit of cost.

† In reserve.

Table of vessels of the United

UNARMORED STEEL VESSELS—

Name.	Type.	Rig.	By whom and where built or building.	Condition or service.
Detroit	Cruiser	Two-masted schooner.	Columbian Iron Works, Baltimore, Md.	Unassigned
Marblehead	Cruiser	Two-masted schooner.	City Point Works, Boston, Mass.	North Atlantic Station.
Montgomery	Cruiser	Two-masted schooner.	Columbian Iron Works, Baltimore, Md.	North Atlantic Station.

UNPROTECTED

Name.	Batteries.			water tight deck.		Water-line protection, obturating material.	
	Main.	Secondary.	Torpedo tubes.	Slopes.	Flat.	Cocoa, capacity, in cubic feet.	Corn pith, capacity, in cubic feet.
				Inches.	*Inches.*		
Detroit	10 5" R. F. guns.	6 6-pdr. R. F 2 1-pdr. R. F 2 Colts 1 field gun	2 Whitehead.	$\frac{7}{16}$	$\frac{5}{16}$	878	
Marblehead	10 5" R. F. guns.	6 6-pdr. R. F 2 1-pdr. R. F 2 Gatlings 1 field gun	2 Whitehead.	$\frac{7}{16}$	$\frac{5}{16}$	878	
Montgomery	10 5" R. F. guns.	6 6-pdr. R. F 2 1-pdr. R. F 2 Gatlings 1 field gun	2 Whitehead.	$\frac{7}{16}$	$\frac{5}{16}$	878	

States Navy—Continued.

UNPROTECTED CRUISERS.

Ship fully equipped ready for sea, all stores on board. Normal coal supply.												
Length on load water line.	Extreme breadth.	Mean draft.	Displacement.	Gross tonnage.	Net tonnage.	Type of engine.	Speed in knots per hour.	Maximum indicated horsepower.	Tons per inch immersion at normal draft.	Normal coal supply.	Bunker capacity.	Maximum draft aft at lowest point of keel. Ship ready for sea, bunkers full.
Ft. In.	*Ft. In.*	*Ft. In.*	*Tons.*	*Tons.*	*Tons.*					*Tons.*	*Tons.*	*Ft. In.*
257 0	37 0	14 7	2,089	1,250.05	850.04	Twin screw vertical triple expansion.	18.71	5,227	15.75	200	340	16 8
257 0	37 0	14 7	2,089	1,250.05	850.04	Twin screw vertical triple expansion.	18.44	5,451	15.75	200	340	16 8
257 0	37 0	14 7	2,089	1,250.05	850.04	Twin screw vertical triple expansion.	19.05	5,580	15.75	200	340	16 8

CRUISERS.

Complement.		Contract cost of hull and machinery.	Date of act authorizing the building.	Contract signed.	Keel laid.	Launched.	Contract date of completion.	Date of first commission.
Officers.	Men.							
20	236	612,500	Sept. 7, 1888	Nov. 2, 1889	Feb., 1890	Oct. 28, 1891	May 2, 1892	July 20, 1893
20	228	674,000	Sept. 7, 1888	Nov. 11, 1889	Oct., 1890	Aug. 11, 1892	May 11, 1892	Apr. 2, 1894
20	237	612,500	Sept. 7, 1888	Nov. 2, 1889	Feb., 1890	Dec. 5, 1891	May 2, 1892	June 21, 1894

Table of vessels of the United

UNARMORED STEEL

Name.	Type.	Rig.	By whom and where built or building.	Condition or service.
Bancroft	Gunboat	Two-masted schooner.	Moore & Sons, Elizabethport, N. J.	European Station.
Bennington	do	Three-masted schooner.	N. F. Palmer & Co., Chester, Pa.	Pacific Station.
Castine	do	Two-masted schooner.	Bath Iron Works, Bath, Me.	South Atlantic Station.
Concord	do	Three-masted schooner.	N. F. Palmer & Co., Chester, Pa.	Unassigned.
Helena	Light-draft gunboat	One military mast.	Newport News Shipbuilding and Dry Dock Co., Newport News, Va.	do
Machias	Gunboat	Two-masted schooner.	Bath Iron Works, Bath, Me.	Asiatic Station.
Nashville	Light-draft gunboat	Two-masted schooner, pole masts.	Newport News Shipbuilding and Dry Dock Co, Newport News, Va.	North Atlantic Station.
Petrel	Gunboat	Barkentine	Columbian Iron Works, Baltimore, Md.	Asiatic Station.
Wilmington	Light-draft gunboat	One military mast.	Newport News Shipbuilding and Dry Dock Co., Newport News, Va.	North Atlantic Station.
Yorktown	Gunboat	Three-masted schooner.	Wm. Cramp & Sons, Philadelphia, Pa.	Asiatic Station.

UNARMORED COMPOSITE VES

Annapolis	Composite gunboat	Barkentine	Lewis Nixon, Elizabethport, N. J.	Unassigned.
Marietta	do	Two-masted schooner.	Union Iron Works, San Francisco, Cal.	do
Newport	do	Barkentine	Bath Iron Works, Bath, Me.	Special duty with Nicaraguan commission. To be practice ship for Naval Academy.
Princeton	do	do	J. H. Dialogue & Son, Camden, N. J.	Building.
Vicksburg	do	do	Bath Iron Works, Bath, Me.	Fitting out for commission, navy-yard, Portsmouth, N. H.
Wheeling	do	Two-masted schooner.	Union Iron Works, San Francisco, Cal.	Unassigned.

States Navy—Continued.

VESSELS—GUNBOATS.

Ship fully equipped ready for sea, all stores on board. Normal coal supply.				Gross tonnage.	Net tonnage.	Type of engine.	Speed in knots per hour.	Maximum indicated horse-power.	Tons per inch immersion at normal draft.	Normal coal supply.	Bunker capacity.	Maximum draft aft at lowest point of keel. Ship ready for sea, bunkers full.
Length on load water line.	Extreme breadth.	Mean draft.	Displacement.									
Ft. In.	*Ft. In.*	*Ft. In.*	*Tons.*	*Tons.*	*Tons.*					*Tons.*	*Tons.*	*Ft. In.*
187 6	32 0	12 2	839	719.61	609.88	Twin screw vertical triple expansion.	14.37	1,213	9.52	100	203	12 11
230 0	36 0	14 0	1,710	1,011.72	687.97	Twin screw horizontal triple expansion.	17.5	3,436	13.72	200	403	16 7
204 0	32 1½	12 0	1,177	776.39	580.25	Twin screw vertical triple expansion.	16.032	2,199	10.84	125	292.6	14 4
230 0	36 0	14 0	1,710	1,011.72	687.97	Twin screw horizontal triple expansion.	16.8	3,405	13.72	200	401	16 7
250 9	40 0⅛	9 0	1,392	1,362.29	1,144.07	Twin screw vertical triple expansion.	15.50	1,988	17.08	100	300	....
204 0	32 1½	12 0	1,777	776.39	580.25	.....do........	15.46	2,046	10.84	125	292.6	14 4
220 0	38 1½	11 0	1,371	1,190.23	975.92	Twin screw vertical quadruple expansion.	16.30	2,536	13.16	150	400	....
176 3	31 0	11 7	892	516.79	401.46	Single screw horizontal compound.	11.79	1,095	9.28	100	200	13 5
250 9	40 0⅛	9 0	1,392	1,362.29	1,144.07	Twin screw vertical triple expansion.	15.08	1,894	17.08	100	300	....
230 0	36 0	14 0	1,710	1,011.72	687.97	Twin screw horizontal triple expansion.	16.14	3,392	13.72	200	380	16 7

SELS—COMPOSITE GUNBOATS.

168 0	36 0	12 0	1,000	849.85	680.36	Single screw vertical triple expansion.	13.17	1,227	10.75	100	225	13 9
174 0	34 0	12 0	1,000	806.11	678.10	Twin screw vertical triple expansion.	13.03	1,054	10.17	120	*236	....
168 0	36 0	12 0	1,000	849.85	680.36	Single screw vertical triple expansion.	12.29	1,008	10.75	100	*238	....
168 0	36 0	12 0	1,000	849.85	680.36	.....do........	*12	*800	10.75	100	*238	....
168 0	36 0	12 0	1,000	849.85	680.36	.....do........	12.71	1,118	10.75	100	*238	....
174 0	34 0	12 0	1,000	806.11	678.10	Twin screw vertical triple expansion.	12.88	1,081	10.17	120	*236	....

* Estimated.

Table of vessels of the

UNARMORED S

Name.	Batteries.			Watertight deck.		Water-line pr tion—obtur material.	
	Main.	Secondary.	Torpedo tubes.	Slopes.	Flat.	Cocoa, capacity in cubic feet.	C pitl pac cubi
				Inch.	*Inch.*		
Bancroft	4 4″ R. F. guns	2 6-pdr. R. F. 2 3-pdr. R. F. 1 1-pdr. R. F. 1 Gatling	1 White-head.	$\frac{5}{16}$	$\frac{1}{4}$	1,309	....
Bennington	6 6″ B. L. R	2 6-pdr. R. F. 2 3-pdr. R. F. 2 37^{mm} H. R. C 2 Gatlings	....	$\frac{3}{8}$	$\frac{3}{8}$	....	....
Castine	8 4″ R. F. guns	4 6-pdr. R. F. G 2 1-pdr. R. F. G	....	$\frac{3}{8}$	$\frac{5}{16}$	748.12	....
Concord	6 6″ B. L. R	2 6-pdr. R. F. 2 3-pdr. R. F. 2 37^{mm} H. R. C 2 Gatlings	....	$\frac{3}{8}$	$\frac{3}{8}$	....	....
Helena	8 4″ R. F. guns	4 6-pdr. R. F. G 4 1-pdr. R. F. G 2 Colts 1 field gun	....	$\frac{3}{8}$	$\frac{5}{16}$	....	....
Machias	8 4″ R. F. guns	4 6-pdr. R. F. 2 1-pdr. R. F.	....	$\frac{3}{8}$	$\frac{5}{16}$	748.12	....
Nashville	8 4″ R. F. guns	4 6-pdr. R. F. G 2 1-pdr. R. F. G 2 Colts 1 field gun	....	$\frac{3}{8}$	$\frac{5}{16}$	....	....
Petrel	4 6″ B. L. R	2 3-pdr. R. F. 1 1-pdr. R. F. 2 37^{mm} H. R. C 2 Gatlings	....	$\frac{3}{8}$	$\frac{5}{16}$	....	....
Wilmington	8 4″ R. F. guns	4 6-pdr. R. F. G 4 1-pdr. R. F. G 4 Colts 1 field gun	....	$\frac{3}{8}$	$\frac{5}{16}$	....	....
Yorktown	6 6″ B. L. R	2 6-pdr. R. F. 2 3-pdr. R. F. 2 1-pdr. R. F. 2 37^{mm} H. R. C 2 Gatlings	....	$\frac{3}{8}$	$\frac{3}{8}$	....	....

UNARMORED COMPOSIT

Name.	Main.	Secondary.	Torpedo tubes.	Slopes.	Flat.	Cocoa, capacity in cubic feet.	C pitl pac cubi
Annapolis	6 4″ R. F. guns	4 6-pdr. R. F. G 2 1-pdr. R. F. G 1 Colt 1 field gun	....	....	....	....	....
Marietta	6 4″ R. F. guns	4 6-pdr. R. F. G 2 1-pdr. R. F. G 1 Colt 1 field gun	....	....	....	....	....
Newport	6 4″ R. F. guns	4 6-pdr. R. F. G 2 1-pdr. R. F. G 1 Colt 1 field gun	....	....	....	....	....
Princeton	6 4″ R. F. guns	4 6-pdr. R. F. G 2 1-pdr. R. F. G 1 Colt 1 field gun	....	....	....	....	....
Vicksburg	6 4″ R. F. guns	4 6-pdr. R. F. G 2 1-pdr. R. F. G 1 Colt 1 field gun	....	....	....	....	....
Wheeling	6 4″ R. F. guns	4 6-pdr. R. F. G 2 1-pdr. R. F. G 1 Colt 1 field gun	....	....	....	....	....

Navy—Continued.

LS—GUNBOATS.

	Contract cost of hull and machinery.	Date of act authorizing the building.	Contract signed.	Keel laid.	Launched.	Contract date of completion.	Date of first commission.
13	$250,000	Sept. 7, 1888	July 18, 1890	Feb., 1891	Apr. 30, 1892	July 18, 1892	Mar. 3, 1893
79	490,000	Mar. 3, 1887	Nov. 15, 1887	June, 1888	June 3, 1890	May 15, 1889	June 20, 1891
40	318,500	Mar. 2, 1889	Apr. 12, 1890	Feb., 1891	May 11, 1892	Apr. 12, 1892	Oct. 22, 1894
81	490,000	Mar. 3, 1887	Nov. 15, 1887	May, 1888	Mar. 8, 1890	May 15, 1889	Feb. 14, 1891
65	280,000	Mar. 3, 1893	Jan. 29, 1894	Oct. 11, 1894	Jan. 30, 1896	Jan. 29, 1896	July 8, 1897
40	318,500	Mar. 2, 1889	Apr. 12, 1890	Feb., 1891	Dec. 8, 1891	Apr. 12, 1892	July 20, 1893
65	280,000	Mar. 3, 1893	Jan. 22, 1894	Aug. 9, 1894	Oct. 19, 1895	Jan. 22, 1896	Aug. 19, 1897
12	247,000	Mar. 3, 1885	Dec. 22, 1886	Aug. 27, 1887	Oct. 13, 1888	Dec. 22, 1887	Dec. 10, 1889
65	280,000	Mar. 3, 1893	Jan. 29, 1894	Oct. 8, 1894	Oct. 19, 1895	Jan. 29, 1896	May 13, 1897
81	455,000	Mar. 3, 1885	Jan. 31, 1887	May 14, 1887	Apr. 28, 1888	Jan. 31, 1888	Apr. 23, 1889

COMPOSITE GUNBOATS.

24	$227,700	Mar. 2, 1895	Nov. 20, 1895	Apr., 1896	Dec. 23, 1896	Feb. 20, 1897	July 20, 1897
29	223,000	Mar. 2, 1895	Nov. 26, 1895	Apr. 13, 1896	Mar. 18, 1897	Feb. 26, 1897	Sept. 1, 1897
24	229,400	Mar. 2, 1895	Nov. 15, 1895	Mar., 1896	Dec. 5, 1896	Feb. 15, 1897	Oct. 5, 1897
24	230,000	Mar. 2, 1895	Nov. 20, 1895	May, 1896	June 3, 1897	Feb. 20, 1897	....
24	229,400	Mar. 2, 1895	Nov. 15, 1895	Mar., 1896	Dec. 5, 1896	Feb. 15, 1897	....
29	219,000	Mar. 2, 1895	Nov. 26, 1895	Apr. 11, 1896	Mar. 18, 1897	Feb. 26, 1897	Aug. 10, 1897

Table of vessels of the United

UNARMORED VESSELS—

Name.	Type.	Rig.	By whom and where built or building.	Condition or service.
Dolphin	Steel dispatch boat	Three-masted schooner.	John Roach & Sons, Chester, Pa.	Special service
Vesuvius	Steel dynamite gunboat.	....	Wm. Cramp & Sons, Philadelphia, Pa.	North Atlantic Station.
Training ship	Composite training ship for Naval Academy.	Ship	....	Plans being prepared.

Name.	Batteries.			Water-tight deck.		Water-line protection obturating material.	
	Main.	Secondary.	Torpedo tubes.	Slopes.	Flat.	Cocoa, capacity in cubic feet.	Corn pith, capacity in cubic feet.
Dolphin	2 4″ R. F. guns	2 6-pdr. R. F 2 47mm H. R. C 2 Gatlings	....	....	....	....	....
Vesuvius	3 dynamite guns, 15″ cal.	3 3-pdr. R. F	....	$\frac{3}{16}$	$\frac{3}{16}$	....	....
Training ship	6 4″ R. F. guns	4 6-pdr. R. F 2 1-pdr. R. F	....	....	....	....	....

States Navy—Continued.

SPECIAL CLASS.

Ship fully equipped ready for sea, all stores on board. Normal coal supply.																
Length on load water line.		Extreme breadth.		Mean draft.		Displacement.	Gross tonnage.	Net tonnage.	Type of engine.	Speed in knots per hour.	Maximum indicated horsepower.	Tons per inch immersion at normal draft.	Normal coal supply.	Bunker capacity.	Maximum draft aft at lowest point of keel. Ship ready for sea, bunkers full.	
Ft.	*In.*	*Ft.*	*In.*	*Ft.*	*In.*	*Tons.*	*Tons.*	*Tons.*					*Tons.*	*Tons.*	*Ft.*	*In.*
240	0	32	0	14	3	1,486	915.51	684.72	Single screw vertical compound.	15.50	2,253	13.31	......	273.74	17	1⅜
252	4	26	6⅝	10	7½	929	579.98	394.39	Twin screw vertical triple expansion	21.42	3,794.86	10.65	......	152.2	11	2½
175	0	37	0	16	6	1,175	......	......	None..........	......	....	10.86	......	......	......	

Complement.		Contract cost of hull and machinery.	Date of act authorizing the building.	Contract signed.	Keel laid.	Launched.	Contract date of completion.	Date of first commission.
Officers.	Men.							
7	110	$315,000	Mar. 3, 1883	July 23, 1883	Oct. 11, 1883	Apr. 12, 1884	July 23, 1884	Dec. 8, 1885
6	63	350,000	Aug. 3, 1886	Feb. 11, 1887	Sept., 1887	Apr. 28, 1888	Feb. 11, 1888	June 7, 1890
....	....	....	Mar. 3, 1897 July 19, 1897*	....	....	....	....	....

* $125,000 appropriated.

Table of vessels of the United

UNARMORED STEEL

Name.	Type.	By whom and where built or building.	Condition or service.
Cushing	Torpedo boat	Herreshoff Mfg. Co., Bristol. R. I.	Torpedo boat flotilla.
Ericsson	Torpedo boat	Iowa Iron Works, Dubuque, Iowa.	Torpedo boat flotilla.
Foote	Torpedo boat	Columbian Iron Works, Baltimore, Md.	Torpedo boat flotilla.
Rodgers	Torpedo boat	Columbian Iron Works, Baltimore, Md.	Building
Winslow	Torpedo boat	Columbian Iron Works, Baltimore, Md.	Building
Porter	Torpedo boat	Herreshoff Mfg. Co., Bristol, R. I.	Torpedo boat flotilla.
Du Pont	Torpedo boat	Herreshoff Mfg. Co., Bristol, R. I.	Torpedo boat flotilla.
Rowan	Torpedo boat	Moran Brothers Co., Seattle, Wash.	Building
Dahlgren	Torpedo boat	Bath Iron Works, Bath, Me	Building
T. A. M. Craven	Torpedo boat	Bath Iron Works, Bath, Me	Building
Farragut	Torpedo boat	Union Iron Works, San Francisco, Cal.	Building
Davis	Torpedo boat	Wolff & Zwicker, Portland, Oreg.	Building
Fox	Torpedo boat	Wolff & Zwicker, Portland, Oreg.	Building
Morris	Torpedo boat	Herreshoff Mfg. Co., Bristol, R. I.	Building
Talbot	Torpedo boat	Herreshoff Mfg. Co., Bristol, R. I.	Building
Gwin	Torpedo boat	Herreshoff Mfg. Co., Bristol, R. I.	Building
Mackenzie	Torpedo boat	The Chas. Hillman Co., Philadelphia. Pa.	Building
McKee	Torpedo boat	Columbian Iron Works, Baltimore, Md.	Building
Stringham	Torpedo boat	Harlan and Hollingsworth Co., Wilmington, Del.	Building
Goldsborough	Torpedo boat	Wolff & Zwicker, Portland, Oreg.	Building
Bailey	Torpedo boat	Gas Engine and Power Co. and Chas. L. Seabury & Co., Consolidated, Morris Heights, N. Y.	Building
Plunger	Submarine torpedo boat.	Columbian Iron Works, Baltimore, Md.*	Building

WOOD TORPEDO

Stiletto	Torpedo boat	Purchased from Herreshoff Mfg. Co.	Torpedo practice, Newport, R. I.

* Contractors, John P. Holland Torpedo Boat Co., New York, N. Y.

***States** Navy*—Continued.

VESSELS—TORPEDO BOATS.

Ship fully equipped ready for sea, all stores on board. Normal coal supply.												
Length on load water line.	Extreme breadth.	Mean draft.	Displacement.	Gross tonnage.	Net tonnage.	Type of engine.	Speed in knots per hour.	Maximum indicated horse power.	Tons per inch immersion at normal draft.	Normal coal supply.	Bunker capacity.	Maximum draft aft at lowest point of keel. Ship ready for sea, bunkers full.
Ft. In.	*Ft. In.*	*Ft. In.*	*Tons.*	*Tons.*	*Tons.*					*Tons.*	*Tons.*	*Ft. In.*
138 9	14 3	4 10¾	105	97.59	66.37	Twin screw vertical quadruple expansion.	22.5	1,720	3.10	......	36	5 6
149 7	15 6	4 9	120	114.68	77.99	......do.........	*24	*1,800	3.56	9	35.40	5 6⅝
160 0	16 0¾	5 0	142	141.83	96.45	Twin screw vertical quadruple expansion.	24.53	......	4.07	9	43	....
160 0	16 0¾	5 0	142	141.83	96.45	.....do.........	*24.5	*2,000	4.07	9	*42	....
160 0	16 0¾	5 0	142	141.83	96.45	.....do.........	*24.5	*2,000	4.07	9	*42	....
175 0	17 0	5 6	......	......	......	.....do.........	28.630	......	......	......	76	7 5
175 0	17 0	5 6	......	......	......	.....do.........	*27.5	......	......	......	......	....
170 0	17 0	5 11½	182	173.83	118.21	.....do.........	*26.0	*3,200	4.65	12	*60	....
147 0	16 4½	4 7½	146.4	......	......	Twin screw vertical triple expansion.	*30½	*4,200	4.08	9	*32	....
147 0	16 4½	4 7½	146.4	......	......	.....do.........	*30½	*4,200	4.08	9	*32	....
210 0	20 4	6 0	273	......	......	.....do.........	*30	*5,600	7.00	......	*76	....
146 0	15 4	5 4	132	......	......	.....do.........	*22½	*1,750	3.23	......	......	....
146 0	15 4	5 4	132	......	......	.....do.........	*22½	*1,750	3.23	......	......	....
138 3	15 6	4 3⅜	103	......	......	.....do.........	*22½	*1,730	......	......	*28	....
98 0	12 6	3 3¼	46½	......	......	Single screw vertical triple expansion.	*20	*850	1.87	......	......	....
98 0	12 6	3 3¼	46½	......	......	.....do.........	*20	*850	1.87	......	......	....
99 3	12 9½	4 3	65	......	......	.....do.........	*20	*850	......	5	*15.3	....
99 3	12 9½	4 3	65	......	......	.....do.........	*20	*850	......	......	......	....
225 0	22 0	6 6	340	......	......	Twin screw vertical triple expansion.	*30	*7,200	8.03	35	*120	....
191 8	20 5	5 0	247.5	......	......	.....do.........	*30	......	......	20	*131	....
205 0	19 0	6 0	235	......	......	.....do.........	*30	*5,600	......	......	......	....
†85 3	11 6	....	168	......	......	.....do‡.........	*8.0	*1,200 (§*)	......	......	......	....

BOAT.

88 6	11 0	3 0	31	....	....	Single screw vertical.	18.22	359	......	2	4	5 0

---

* Estimated.

† Length over all.

‡ Also single screw operated by storage cells to supply an electric motor to propel the vessel when completely submerged at a speed of 8 knots for 6 hours.

§ Indicated horsepower for 15 knots in light condition.

Table of vessels of the United

UNARMORED STEEL

Name.	Batteries.		Water-tight deck.		Complement.	
	Torpedo tubes.	Guns.	Slopes.	Flat.	Officers.	Men.
Cushing	3 18″ Whitehead.	3 1-pdr. R. F.			3	20
Ericsson	3 18″ Whitehead.	4 1-pdr. R. F.			3	20
Foote	3 18″ Whitehead.	3 1-pdr. R. F.			4	20
Rodgers	3 18″ Whitehead.	3 1-pdr. R. F.			4	20
Winslow	3 18″ Whitehead.	3 1-pdr. R. F.			4	20
Porter	3 18″ Whitehead.	4 1-pdr. R. F.			4	28
Du Pont	3 18″ Whitehead.	4 1-pdr. R. F.			4	28
Rowan	3 18″ Whitehead.	4 1-pdr. R. F.			4	28
Dahlgren	2 18″ Whitehead. Long.	4 1-pdr. R. F.				
T. A. M. Craven	2 18″ Whitehead. Long.	4 1-pdr. R. F.				
Farragut	2 18″ Whitehead.	4 6-pdr. R. F.				
Davis	3 18″ Whitehead. Long.	3 1-pdr. R. F.				
Fox	3 18″ Whitehead. Long.	3 1-pdr. R. F.				
Morris	3 18″ Whitehead.	3 1-pdr. R. F.				
Talbot	2 18″ Whitehead.	1 1-pdr. R. F.				
Gwin	2 18″ Whitehead.	1 1-pdr. R. F.				
Mackenzie	2 18″ Whitehead.	1 1-pdr. R. F.				
McKee	2 18″ Whitehead.	1 1-pdr. R. F.				
Stringham	2 18″ Whitehead.	7 6-pdr. R. F.				
Goldsborough	2 18″ Whitehead.	4 6-pdr. R. F.				
Bailey	2 18″ Whitehead.	4 6-pdr. R. F.				
Plunger	2 Whitehead.					

WOOD TORPEDO

Stiletto	2 Howell					

States Navy—Continued.

VESSELS—TORPEDO BOATS.

Contract cost of hull and machinery.	Date of act authorizing the building.	Contract signed.	Keel laid.	Launched.	Contract date of completion.	Date of first commission.
$82,750	Aug. 3, 1886	Mar. 1, 1888	Apr., 1888	Jan. 23, 1890	June 1, 1889	Apr. 22, 1890
113,500	June 30, 1890	Oct. 8, 1891	July 21, 1892	May 12, 1894	Oct. 8, 1892	Feb. 18, 1897
97,500	July 26, 1894	May 3, 1895	May 1, 1896	Oct. 1, 1896	Aug. 3, 1896	Aug. 7, 1897
97,500	July 26, 1894	May 3, 1895	May 6, 1896	Nov. 10, 1896	Aug. 3, 1896	....
97,500	July 26, 1894	May 3, 1895	May 8, 1896	Jan. 6, 1897	Aug. 3, 1896	....
144,000	Mar. 2, 1895	Oct. 19, 1895	....	Sept. 9, 1896	Aug. 19, 1896	Feb. 20, 1897
144,000	Mar. 2, 1895	Oct. 19, 1895	....	Mar. 30, 1897	Nov. 19, 1896	Sept. 23, 1897
160,000	Mar. 2, 1895	Oct. 19, 1895	June 22, 1896	....	Jan. 19, 1897	....
194,000	June 10, 1896	Oct. 6, 1896	....	....	Apr. 6, 1898	....
194,000	June 10, 1896	Oct. 6, 1896	....	....	Apr. 6, 1898	....
227,500	June 10, 1896	Oct. 5, 1896	....	....	Apr. 5, 1898	....
81,546	June 10, 1896	Oct. 6, 1896	Mar. 2, 1897	....	Oct. 6, 1897	....
81,546	June 10, 1896	Oct. 6, 1896	Mar. 4, 1897	....	Oct. 6, 1897	....
85,000	June 10, 1896	Oct. 6, 1896	....	....	Oct. 6, 1897	....
39,000	June 10, 1896	Oct. 6, 1895	Apr. 8, 1897	....	Oct. 6, 1897	....
39,000	June 10, 1896	Oct. 6, 1896	Apr. 14, 1897	....	Oct. 6, 1897	....
48,500	June 10, 1896	Oct. 7, 1896	Apr. 15, 1897	....	Oct. 7, 1897	....
45,000	June 10, 1896	Oct. 7, 1896	....	....	Oct. 7, 1897	....
236,000	Mar. 3, 1897	July 29, 1897	....	....	Jan. 29, 1899	....
214,500	Mar. 3, 1897	July 30, 1897	....	....	Jan. 30, 1899	....
210,000	Mar. 3, 1897	July 28, 1897	....	....	Jan. 28, 1899	....
150,000	Mar. 3, 1893	Mar. 13, 1895	June 23, 1896	Aug. 7, 1897	Mar. 13, 1896	....

BOAT.

†25,000	....	....	....	....	....	....

† Limit of cost.

Table of vessels of the United

IRON AND WOODEN

Name.	Built.			Condition or service.	Rig.
	When.	Where.	By whom.		
IRON.					
Alert	1873-1875	Chester, Pa	John Roach	Pacific Station	Bark
Monocacy	1863	Baltimore, Md	A. & W. Denmead & Son.	Asiatic Station	Schooner
Michigan	1844	Erie, Pa	United States	Sp'c'l service, Northwestern Lakes.	Barkentine
Pinta	1865	Chester, Pa	Reany, Son & Archbold.	Special service, Alaska.	Schooner
Ranger	1873-1876	Wilmington, Del.	Harlan & Hollingsworth.	In ordinary, Mare Island, Cal.	Bark
WOODEN.					
Adams	1874-1876	Boston, Mass	United States and Donald McKay.	Training service	Bark
Alliance	1873-1876	Norfolk, Va	United States	do	do
Enterprise	1873-1876	Kittery, Me	John W. Griffith and United States.	Public marine school, Boston, Mass.	do
Essex	1874-1876	Kittery and Boston.	United States and Donald McKay.	Training service	do
Fern	1871	New York, N. Y.	Delamater & Stack	Transport steamer and tender, North Atlantic Station.	Two-masted schooner.
Hartford ‡	1858	Boston, Mass	United States	Rebuilding, Mare Island, Cal.	Bark
Lancaster	1858	Philadelphia, Pa	do	South Atlantic Station.	Ship
Marion	1871-1875	Kittery, Me	do	Pacific Station	Bark
Mohican	1872-1883	Mare Island, Cal	do	In ordinary, Mare Island, Cal.	do
Thetis		Dundee, Scotland	Alex. Stephens & Sons.	do	do
Yantic	1864	Philadelphia, Pa.	United States	Fitting out for naval militia, Michigan, at navy-yard, Boston, Mass.	do

---

* Anthracite.

† Bituminous.

States Navy—Continued.

STEAM VESSELS.

Dimensions.								Batteries.			Complement.	
Length between perpendiculars.	Breadth.	Mean draft.	Displacement.	Gross tonnage.	Net tonnage.	Indicated horsepower.	Speed in knots per hour.	Main.	Secondary.	Bunker Capacity.	Officers.	Men.
Ft. In.	*Ft. In.*	*Ft. In.*	*Tons*	*Tons.*	*Tons.*					*Tons*		
175 0	32 0	12 9	1,020	593.04	453.40	500	10	2 IX" S. B....... 1 60-pdr. B. L. R.	2 6-pdr........... 2 37mm........... 2 Gatling........	*190	21	128
255 0	35 0	9 0	1,370	....	....	850	11.2	4 VIII" S. B... 2 60 pdr. B. L. R.	1 3" B. L. H..... 1 12-pdr. S. B. htz 4 37mm H. R. C.. 2 47mm H. R. C.. 2 Gatlings......	*224	12	146
163 3	27 1½	9 0	685	491.59	230.05	365	10.5	....	6 6-pdr. R. F.... 2 1-pdr. R. F.... 2 Gatlings......	*125	...	89
137 0	26 0	10 0	550	355.46	267.24	310	8.5	2 12-pdr. S. B. htz.	1 Gatling........ 1 1-pdr. R. F....	*111	8	77
175 0	32 0	12 9	1,020	882.27	754.27	500	10	6 4" R. F. guns..	4 6-pdr. R. F.... 1 field gun....... 1 Colt mach. gun	*146	21	127
185 0	35 0	14 3	1,375	663.37	....	800	9.8	1 8" M. L. R..... 4 IX guns........ 1 60-pdr. B. L. R.	1 3" B. L. H..... 1 Gatling........ 2 37mm R. C.....	*150	20	160
185 0	35 0	14 3	1,375	....	....	800	9.98	6 4" R. F. G.....	4 6-pdr. R. F. G.. 2 1-pdr. R. F. G..	*159	18	160
185 0	35 0	14 3	1,375	....	....	800	11.4	1 3" B. L. H.....	....	*130	...	...
185 0	35 0	14 3	1,375	....	....	800	10.4	6 4" R. F. G.....	4 6-pdr. R. F. G.. 2 1-pdr. R. F. G..	†130	15	172
160 0	28 0	11 9½	840	....	549	300	9	1 6-pdr. R. F.....	....	80	5	45
225 0	44 0	18 2	2,790	1,855.36	1,612.12	2,000	12	13 5" R. F. G....	4 6-pdr. R. F. G..	*286	32	212
235 8	46 0	19 2	3,250	2,119.64	1,802.07	1,000	9.6	10 5" R. F. G.... 2 5" B. L. R.....	2 6-pdr. R. F.... 2 1-pdr. R. F.... 2 37mm H. R. C... 1 Gatling........	*326	...	265
216 0	37 0	16 6	1,900	....	....	1,100	11.25	6 9" S. B......... 1 8" M. L. R..... 1 60-pdr. B. L. R.	1 3" B. L. R..... 2 20-pdr. B. L. R. 2 37mm H. R. C... 1 Gatling........	*135	18	190
216 0	37 0	16 6	1,900	671.20	....	1,100	10.65	Battery landed..	Battery landed..	*162	21	186
166 0	30 3	18 0	1,250	....	....	530	7.55	1 53mm H. R. C...	....	300	10	97
180 0	30 0	12 2	900	....	....	310	8.30	Battery landed..	Battery landed.	*130	20	131

‡ To be refitted with new machinery and modern battery.

Table of vessels of the United

WOODEN SAILING

Name.	Built. When.	Built. Where.	Built. By whom.	Condition or service.	Rig.
Constellation	1854	Norfolk, Va.	United States	Stationary training ship, Newport, R. I.	Ship
Jamestown	1845	do	do	Hospital ship	do
Monongahela	1862	Philadelphia, Pa.	do	Practice ship, Annapolis, Md.	do
Portsmouth	1843	Kittery, Me.	do	For use of naval militia, New Jersey.	do
Saratoga	1842	do	do	Public marine school, Philadelphia, Pa.	do
St. Mary's	1844	Washington, D.C.	do	Public marine school, New York, N. Y.	do

STEEL, IRON, AND

Name.	Built. Where.	Built. By whom.	Material.	Condition or service.	Rig.	Dimensions. Length between perpendiculars. Ft. In	Dimensions. Breadth. Ft. In	Dimensions. Mean draft. Ft. In	Displacement. Tons
Fortune	Boston	James Tetlow	Iron	To be repaired at Norfolk, Va.	Schooner	137 0	26 0	9 6	450
Iwana	do	City Point Iron Works.	Steel	Yard tug, Boston, Mass.		92 6	20 11⅜	8 0	192.4
Leyden	do	James Tetlow.	Iron	Yard tug, Portsmouth, N. H.	Schooner	137 0	26 0	9 6	450
Narkeeta	do	City Point Iron Works.	Steel	Yard tug, New York, N. Y.		92 6	20 11⅜	8 0	192.4
Nina	Chester	Reany, Son & Archbold.	Iron	Navy-yard, New York, N.Y.	Schooner	137 0	26 0	8 6	357
Rocket		Purchased	Wood	Navy-yard, Boston, Mass.		85 8	18 10	7 0	187
Standish*	Boston	James Tetlow.	Iron	Naval Academy, Annapolis, Md.	Schooner	137 0	26 0	9 6	450
Traffic	South Brooklyn, N. Y.	D. McCarthy	Wood	Navy-Yard, New York.	Derrick mast.	106 0	29 4	9 0	280
Triton	Camden, N. J.	John H. Dialogue.	Steel	Yard tug, Washington, D. C.		96 9	20 9	9 0	212
Unadilla	Mare Island, Cal.	Government	Steel	Yard tug, Mare Island.	Schooner	110 0	25 0	10 0	345
Wahneta	Boston	City Point Iron Works.	Steel	Yard tug, Norfolk.		92 6	20 11⅜	8 0	192.4
Samoset	Norfolk, Va.	Government	Steel	Yard tug, League Island, Pa.		92 6	21 0	8 9	225
Tugboat No. 6.	New York	do	Steel	do	Schooner	92 6	21 1	8 9	225
Tugboat No. 7.	Mare Island, Cal.	do	Steel	do	do	92 6	21 1	8 9	225

* Has one torpedo tube and one 6 pounder.

States Navy—Continued.

VESSELS.

Dimensions.			Displacement.	Gross tonnage.	Net tonnage.	Batteries.		Complement.	
Length between perpendiculars.	Breadth.	Mean draft.				Main.	Secondary.	Officers.	Men.
Ft. In.	*Ft. In.*	*Ft. In.*	*Tons.*	*Tons.*	*Tons.*				
176 0	42 0	20 0	1,186	1,235.54	1,235.54	8 VIII″ S. B.....	2 20-pdr. B. L. R... 2 6-pdr. field ...... 2 3″ B. L. H....... 1 Gatling......... 2 37^{mm} H. R. C.....	15	173
163 6	36 0	16 0	1,150	888.23	888.23	......	......	......	......
223 0	38 0	16 6	2,100	960.45	960.45	4 VIII″ S. B.....	1 3″ B. L. H....... 2 6-pdr. R. F. G.... 4 37^{mm} H. R. C.....	21	142
153 0	38 3	16 6	1,125	846.30	846.30	11 VIII″ S. B.... 1 60-pdr. B. L. R.	......	15	......
147 6	36 1	16 0	1,025	757.72	757.72	......	......	......	......
150 0	37 6	15 6	1,025	766.84	766.84	......	......	......	......

WOODEN STEAM TUGS.

Gross tonnage.	Net tonnage.	Indicated horse-power.	Speed, in knots.	Coal capacity.	Contract cost of hull and machinery.	Date of act authorizing building.	Contract signed.	Keel laid.	Launched.	Contract date of completion.
Tons.	*Tons.*			*Tons*						
......	......	340	10	80	......	......	......	1865	......	......
161.50	109.82	300	11.5	35	$32,438	Mar. 2, 1889	Dec. 20, 1890	Apr., 1891	Mar.12,1892	Dec. 20, 1891
......	......	340	10	80	......	......	......	1866	......	......
161.50	109.82	300	11.5	35	32,438	Mar. 2, 1889	Dec. 20, 1890	Apr., 1891	Feb. 11,1892	Dec. 20, 1891
......	......	388	11.12	80	......	......	......	1865	......	......
......	......	147	8.5	......	......	......	......	1863	......	......
330.33	224.63	340	10	80	......	......	......	1865	......	......
......	......	....	10	......	......	......	......	1891	......	......
......	......	300	13	45	......	......	......	1888	......	......
289.59	196.93	500	12	65	†80,000	July 26,1894	......	Apr.29,1895	Sept.21,1895	......
161.50	109.82	300	11.5	35	32,438	Mar. 2. 1889	Dec. 20, 1890	Apr., 1891	Mar. 3, 1892	Dec. 20, 1891
164.96	112.18	450	12	30	†25,000	Mar. 2. 1895	......	Jan. 13, 1895	Mar.20,1897	......
......	......	450	.....	30	†50,000	Mar. 3, 1897	......	......	......	......
......	......	450	.....	30	†50,000	Mar. 3, 1897	......	......	......	......

† Appropriated.

Table of vessels of the United

WOODEN STEAM VESSELS—

Name.	Built.			Condition or service.	Rig.
	When.	Where.	By whom.		
Franklin	1855–1865	Kittery, Me	United States	Receiving ship, Norfolk, Va.	Housed over
Iroquois	1858	New York, N. Y.	do	Transferred to Marine Hospital Service.	Bark
Minnesota	1855	Washington, D. C.	do	For use of naval militia, Massachusetts.	Housed over
Nipsic	1873–1879	do	do	Naval station, Puget Sound.	Bark
Omaha	1867–1869	Philadelphia, Pa.	do	Transferred to Marine Hospital Service.	do
Pensacola	1858–1862	Pensacola Fla	do	Being fitted for temporary training station, navy-yard, Mare Island.	Ship
Richmond	1858	Norfolk, Va	do	Receiving ship, navy-yard, League Island, Pa.	do
Wabash	1854	Philadelphia, Pa.	do	Receiving ship, Boston, Mass.	Housed over

WOODEN SAILING VESSELS—

Name.	Built.			Condition or service.	Rig.
	When.	Where.	By whom.		
Constitution	1797	Boston, Mass	United States	In ordinary Boston, Mass. Centennial Oct. 21, 1897.	Housed over
Dale	1839	Philadelphia, Pa.	do	For use of naval militia, Baltimore.	do
Independence	1837	Boston, Mass	do	Receiving ship, Mare Island, Cal.	do
New Hampshire.	1818	Kittery, Me	do	For use of naval militia, New York, N. Y.	Ship
St. Louis	1828	Washington, D. C.	do	For use of naval militia, Philadelphia, Pa.	Housed over
Vermont	1818	Boston, Mass	do	Receiving ship, New York, N. Y.	do

States Navy—Continued.

UNFIT FOR SEA SERVICE.

Dimensions.											Batteries.			Complement.	
Length between perpendiculars.		Breadth.		Mean draft.		Displacement.	Gross tonnage.	Net tonnage.	Indicated horsepower.	Speed in knots per hour.	Main.	Secondary.	Coal capacity.	Officers.	Men.
Ft.	*In.*	*Ft.*	*In.*	*Ft.*	*In.*	*Tons.*	*Tons.*	*Tons.*					*Tons.*		
365	9	54	3	24	3	5,170	3,172.37	....	1,050	9	4 IX" S. B....	1 12-pdr. S. B. howtz.	......	...	108
198	10	33	10	15	3	1,575	695.28	....	1,202	10.7	Battery landed	Battery landed.	†128	...	....
264	8½	51	4	23	0	4,700	2,911.51	....	1,000	9.25	8 IX" S. B.... 1 60-pdr. B. L. R.	2 3" B. L. H... 2 20-pdr. B. L. R. 3 12-pdr. S. B. howtz.	......	...	....
185	0	35	0	14	3	1,375	....	....	839	10.7	4 IX"........	....	*132	...	....
250	6	38	0	16	6	2,400	1,082.56	....	953	11.3	Battery landed	Battery landed.	......	...	....
230	8	44	6	18	7	3,000	1,903.16	....	680	9	.....do	.....do	†285	...	....
225	0	42	6	17	4½	2,700	1,384.94	....	692	9.5	....	2 6-pdr. R. F. G..	*265	...	66
262	7	51	4	23	0	4,650	2,917.89	....	950	9.15	....	2 20-pdr. B. L. R. 2 12-pdr. S. B. howtz.	......	...	116

UNFIT FOR SEA SERVICE.

Dimensions.									Batteries.	
Length between perpendiculars.		Breadth.		Mean draft.		Displacement.	Gross tonnage.	Net tonnage.	Main.	Secondary.
Ft.	*In.*	*Ft.*	*In.*	*Ft.*	*In.*	*Tons.*	*Tons.*	*Tons.*		
175	0	45	0	20	0	2,200	....	....	4 32-pdr. S. B......	1 12-pdr. S. B. howtz.
117	7	33	10	14	9	675	....	....	....	
189	0	51	6	21	6	3,270	1,891.26	1,891.26	6 32-pdr. S. B......	3 12-pdr. S. B. (light). 1 12-pdr. S. B. (heavy). 1 3" B. L. H.
196	3	53	0	25	6	4,150	....	....	6 32-pdr. S. B......	2 20-pdr. B. L. R.
126	6	32	8	15	6	830	....	....	....	
196	3	53	0	25	6	4,150	....	....	....	1 6-pdr. R. F. G. 1 3-pdr. R. F. G. 1 1-pdr. R. F. G. 1 37mm H. R. C. 1 12-pdr. S. B. H.

* Anthracite. † Bituminous.

SUMMARY SHOWING THE NUMBER OF VESSELS IN THE UNITED STATES NAVY.

FIRST-CLASS BATTLE SHIPS	9
SECOND-CLASS BATTLE SHIPS	2
ARMORED CRUISERS	2
ARMORED RAMS	1
DOUBLE-TURRETED MONITORS	6
SINGLE-TURRETED MONITORS	13
PROTECTED CRUISERS	13
UNPROTECTED CRUISERS	3
GUNBOATS	10
COMPOSITE GUNBOATS	6
SPECIAL CLASS	3
STEEL TORPEDO BOATS	22
WOOD TORPEDO BOAT	1
IRON CRUISING VESSELS	5
WOODEN CRUISING VESSELS	11
SAILING VESSELS	6
TUGS	14
WOODEN STEAM VESSELS UNFIT FOR SEA SERVICE	8
WOODEN SAILING VESSELS UNFIT FOR SEA SERVICE	6
TOTAL	141

EXTRACTS FROM REPORTS OF NAVAL CONSTRUCTORS RELATIVE TO WORK DONE AT NAVY-YARDS DURING THE FISCAL YEAR.

Reports have been received from all naval constructors in charge of work, giving a complete description of the work done on various vessels building or under repairs, with a detailed statement of the progress of such work, and its condition on July 1, 1897.

The substance of the reports from navy-yards is given very briefly below, together with the tabulated statements of repair work at the several yards submitted by naval constructors. The original reports, together with photographs of all ships under construction, taken on or about July 1, are on file in the Bureau.

NAVY-YARD, BOSTON.

The naval constructor at the navy-yard, Boston, reports that the only work done during the fiscal year was upon the U. S. S. *Dolphin*, commenced June 18 and finished June 23, 1897, consisting of repairs to side ladder rail and fitting graving pieces in deck.

NAVY-YARD, PORTSMOUTH.

The master shipwright in charge of the construction and repair department of the navy-yard, Portsmouth, submits the following tabular statement of work done on the *Leyden*, *Constitution*, *Newport*, and *Vicksburg*:

Name of vessel.	Date when work was ordered.	Date when work was begun.	Date of completion of work.	Remarks.
Leyden	Mar. 13, 1894	Apr. 10, 1894	Sept. 24, 1896	Work was suspended on the Leyden from May 12 to Nov. 12, 1894, when it was again resumed. The Leyden left this yard Sept. 24, 1896.
Constitution	Apr. 6, 1897	Apr. 23, 1897	Two-tenths completed.	Temporary repairs on the Constitution two-tenths completed.
Newport	Jan. 21, 1896	June 23, 1897	Work commenced.	In dock; masts in place; ship being coppered.
Vicksburg	do			At wharf, where she arrived June 22. No work has been done on her since her arrival from the Bath Iron Works.

NAVY-YARD, NEW YORK.

The report of the naval constructor at the navy-yard, New York, describes certain work done on the *Puritan*, *Chicago*, *Atlanta*, *Katahdin*, *Ericsson*, *Indiana*, *Massachusetts*, *Kearsarge*, *Annapolis*, *Princeton*, *Helena*, *Brooklyn*, and *Terror* during the fiscal year ending June 30, 1897, together with a tabular statement covering all repair work during the year.

U. S. S. Puritan.—The work on the *Puritan* consisted in the completion of miscellaneous fittings throughout the ship; fitting up quarters, storerooms, etc., completing drainage and ventilation systems, painting, etc. The *Puritan* was completed and commissioned on December 10, 1896, and sailed from the yard on February 13, 1897, drawing, forward 17 feet 10 inches, aft 18 feet 3 inches.

U. S. S. Chicago.—The work on the *Chicago* consisted in removing all joiner work, overhauling and testing double-bottom compartments, making alterations in stem, fitting new boiler saddles, fitting protective deck forward and aft, overhauling anchor windlass, steering engine, winches, etc., laying out drainage and ventilation systems, fitting outboard valves, cleaning and scraping all iron work, building new steam cutter and gig whaleboat, etc. The *Chicago* has been in Dock No. 1 the greater part of the year. The work under the survey is estimated to be five-tenths completed.

U. S. S. Atlanta.—Work on the *Atlanta* has consisted of repairs to the ventilating fans, boats, equipage, etc. The greater part of the work upon this vessel has been under steam engineering. While in dock the *Atlanta's* bottom was cleaned by means of a sand-blast process, upon which a special report was submitted, before painting.

U. S. S. Katahdin.—Work on the *Katahdin* was mainly in accordance with the approved report of the Naval Inspection Board of June 2, 1896, and consisted in fitting deck houses and gangways, flying fore and aft bridge, breakwaters, lengthening ventilators, fitting portable ventilators to deck lights, fitting stanchions for weather cloth on bridge, extending voice pipes from conning tower to bridge, calking armor, and general repairs. While at the yard the *Katahdin* was docked for cleaning and painting.

Torpedo boat Ericsson.—The work on the *Ericsson* consisted originally of minor items necessary to prepare the boat for commissioning. This work was practically completed on August 8, 1896, the date of the accident to Dry Dock No. 2, at which time the *Ericsson* was badly damaged. On November 28, 1896, she was hauled out on a marine railway at the works of D. H. Burtis, foot of Conover street, South Brooklyn, and repaired, after which she returned to the yard for final completion and commissioning.

U. S. S. Kearsarge.—Work in connection with the *Kearsarge* consisted in building boats for that vessel. One 30-foot whaleboat and one 33-foot sailing launch have been completed; one 40-foot steam cutter and one 30-foot gig whaleboat are about eight-tenths completed; one 30-foot whaleboat is six-tenths completed; one 33-foot steam cutter to replace one completed for this vessel, but transferred to the *Brooklyn*, has been begun.

U. S. S. Massachusetts.—Work on the *Massachusetts* consisted in building and supplying one 30-foot sailing launch, one 28-foot cutter, one 36-foot steam cutter, altering stowage of boats, building emergency cabin, fitting new gangways, fitting new locking bolts for 13 and 8 inch turrets, making alterations in 6-pounder ammunition hoists, providing additional ventilation for steering-engine room, making necessary changes in drainage, refitting boat cranes, making and fitting new battle plates and canopy frames to main-deck hatches, new hawse pipes, alterations in ash chutes, renewing certain sections of fire main, hardening down weather decks, removal of bow torpedo tube and 1-pounders, fitting an additional head for crew, and other minor items. The *Massachusetts* left the yard on January 7, 1897, returning on April 10 following, when she was docked in Dock No. 3 and the following work done: New bilge keels fitted, locking blocks for 13-inch turrets, new outboard delivery tubes, stern torpedo tube removed, new 6-pounder ammunition hoists installed, bottom painted, etc., leaving the yard on May 26.

U. S. S. Indiana.—Work on the *Indiana* consisted in overhauling boat cranes, fitting steam joints for same, fitting locking bolts in 8 and 13 inch turrets, aprons for 13-inch turrets, new hawse pipes, new battle covers for main-deck hatches, water-tight flat in forehold, extra 8-inch shell racks, etc. The *Indiana* left the yard November 29, 1896.

U. S. S. Annapolis.—The *Annapolis* arrived at the yard May 18, 1897, having been accepted by the Government. The equipage, including spars, blocks, and boats, previously ordered to be made at the yard, had been completed, with the exception of a steam cutter reported as eight-tenths completed. The work on the vessel consisted in completing items of unfinished work, making slight changes, stopping slight leaks, etc.

Princeton and Helena.—The equipage of these vessels having been ordered to be made at the navy-yard, all work allotted to the yard force is reported as completed and all necessary requisitions made.

U. S. S. Brooklyn.—The *Brooklyn* came to the yard May 19, 1897, for the purpose of receiving her silver service, cabinets for which were fitted on board.

U. S. S. Terror.—Various items of work were done, principally in connection with the efficient completion of work charged to the Pneumatic Gun Carriage and Power Company, and incidental repairs.

Repair work during fiscal year ending June 30, 1897.

Name of vessel.	Date of survey.	Survey approved.	Work ordered.	Work begun.	Work completed.	Progress in tenths.
Alliance	Feb. 19, 1897	Feb. 26, 1897	July 2, 1896	July 8, 1896	June 18, 1897	
Amphitrite			Sept. 19, 1896	Sept. 19, 1896	June 12, 1897	
Atlanta	Nov. 26, 1895	Jan. 15, 1896		June 21, 1896		.3
Bancroft			Aug. 26, 1896	Aug. 31, 1996	Sept. 11, 1896	
Chicago	June 27, 1895	Apr. 3, 1896	Apr. 3, 1896	July 1, 1896		.5
Columbia			Nov. 11, 1896	Nov. 12, 1896	Aug. 6, 1896	
Cushing			Aug. 3, 1896	Aug. 3, 1896	do	
Detroit	June 4, 1897	June 12, 1897	June 12, 1897	June 3, 1897		.5
Dolphin			Dec. 11, 1896	Dec. 21, 1896	Feb. 2, 1897	
Essex	Sept. 23, 1896	Oct. 24, 1896	Sept. 5, 1896	Sept. 8, 1896	Jan. 10, 1897	
Fern			July 3, 1896	July 6, 1896	June 10, 1897	
Indiana	Nov. 30, 1896	Dec. 3, 1896	Oct. 19, 1896	Oct. 24, 1896	Nov. 29, 1896	
			June 1, 1897	June 4, 1897		.8
Katahdin			July 10, 1896	July 11, 1896	Oct. 12, 1896	
			Feb. 8, 1897	Feb. 9, 1897	May 4, 1897	
Maine	May 17, 1897	May 25, 1897	May 3, 1897	May 3, 1897	June 22, 1897	
Marblehead			Dec. 10, 1896	Dec. 11, 1896	Feb. 2, 1897	
Massachusetts			Aug. 8, 1896	Aug. 12, 1896	Feb. 6, 1897	
			Mar. 15, 1896	Mar. 18, 1896	May 26, 1897	
Michigan			Feb. 26, 1897	Apr. 7, 1897	May 29, 1897	
Montgomery			Oct. 30, 1896	Oct. 30, 1896	Jan. 20, 1897	
Narkeeta			July 25, 1896	July 27, 1896	Oct. 1, 1896	
			Jan. 27, 1897	Jan. 27, 1897	Feb. 26, 1897	
Newark			July 7, 1896	July 28, 1896	Oct. 5, 1896	
New York	June 9, 1896	June 15, 1896	July 1, 1896	July 1, 1896	July 25, 1896	
			Nov. 11, 1896	Nov. 12, 1896	Dec. 19, 1896	
Nina			Aug. 12, 1896	Aug. 4, 1896	Aug. 17, 1896	
			Oct. 24, 1896	Oct. 20, 1896	Oct. 23, 1896	
			Jan. 21, 1897	Jan. 7, 1897	Jan. 29, 1896	
			Mar. 1, 1897	June 17, 1897		.5
Porter			Apr. 9, 1897	Apr. 10, 1897	May 5, 1897	
			May 27, 1897	June 1, 1897	June 19, 1897	
Puritan	June 25, 1897	June 29, 1897	Mar. 3, 1897	Mar. 17, 1897	Mar. 25, 1897	
			June 29, 1897	June 26, 1897		.5
Raleigh			July 8, 1896	July 27, 1896	Aug. 1, 1896	
Terror			Dec. 1 1896	Dec. 1, 1896	Feb. 13, 1897	
			June 10, 1897	June 12, 1897		.4
Texas			Aug. 28, 1896	Aug. 28, 1896	Feb. 8, 1897	
Traffic			July 10, 1896	July 16, 1896	Mar. 10, 1897	
Vermont			July 30, 1896	Aug. 3, 1896	Apr. 3, 1897	

NAVY-YARD, LEAGUE ISLAND.

Report of work done upon vessels at the navy-yard, League Island, Pa., during the fiscal year ending June 30, 1897.

Name of vessel.	Date when work was ordered.	Date when work was begun.	Date when work was completed.	Progress in tenths.	Estimated time to complete.
Miantonomoh	June 5, 1896	Aug. 8, 1896	May 16, 1897		
Do	June 13, 1896	June 26, 1896		9	7 weeks.
Do	Feb. 7, 1896	Feb. 10, 1896		9½	2 weeks.
Do	Aug. 28, 1896	Aug. 29, 1896	July 23, 1896		
Do	Nov. 7, 1896	Nov. 13, 1896		7	2 weeks.
Princeton	Jan. 24, 1896	Feb. 13, 1896		7	2 months.
Do	Apr. 24, 1896	Apr. 30, 1896		9½	2 weeks.
Richmond	May 25, 1896	(*)			
Do	Aug. 26, 1896	Sept. 25, 1896		6	6 months.
Do	Jan. 6, 1897	Jan. 8, 1897	May 17, 1897		
Do	Feb. 3, 1897	Feb. 6, 1897		9½	1 month.
Do	May 27, 1897	(*)			
Do	May 6, 1896	May 11, 1896	July 28, 1896		
Vesuvius	June 13, 1896	July 25, 1896	Feb. 19, 1897		
Do	July 11, 1896	July 22, 1896	July 20, 1896		
Do	July 14, 1896	July 23, 1896	Feb. 19, 1897		
Brooklyn	Feb. 1, 1897	Feb. 2, 1897	May 3, 1897		
Do	Mar. 2, 1897	Mar. 10, 1897	Apr. 27, 1897		
Do	do	Mar. 5, 1897	Apr. 5, 1897		
Do	Mar. 10, 1897	Apr. 13, 1897	Apr. 24, 1897		
Katahdin	Apr. 7, 1897	Apr. 21, 1897		½	4 months.
Catskill	May 9, 1896	July 13, 1896	June 23, 1897		
Lehigh	do	do	do		
Canonicus	do	do	(†)	½	3 months.
Manhattan	do	do	(†)		4 months,
Mahopac	do	do		4	2 months.
Jason	do	(*)			3 months.
Nahant	do	(*)			3 months.
Montauk	do	(*)			3 mon
Ajax	do	(*)			
Massachusetts	July 21, 1896	July 21, 1896	July 29, 1896		
Iowa	June 1, 1897	June 21, 1897		1	

* Not commenced.

† Commenced.

NAVY-YARD, NORFOLK.

The report of the naval constructor at the navy-yard, Norfolk, describes the work done on the *Texas* and *Samoset*, and forwards a tabular statement covering repairs executed at the yard during the year.

U. S. S. Texas.—The work on the *Texas* consisted in completing the changes which had been authorized and most of which had been completed prior to July 1, 1896. The principal work completed after that date consisted in shifting hydraulic pumps to redoubt, overhauling hydraulic turret turning gear, alterations in engine-room ventilation system, fitting electric fans in redoubt, recalking decks, painting and cementing, inclining experiment, and other items of minor importance. The vessel went into commission July 20, 1896, and left the yard August 25 following.

Steam tug No. 5 (*Samoset*).—The keel of the *Samoset* had been laid, and the stem and sternpost erected prior to July 1, 1896. Subsequent to that date all work was completed except davits and stanchions, plumbing, scuppers, steering arrangements, towing bitts, fittings for running lights, painting, and other minor items, which were all partially completed. The work was reported as 96 per cent completed on July 1, 1897, and the estimated date of completion, ready for trial, as August 10, 1897.

Repair work during the fiscal year ending June 30, 1897.

Name of vessel.	Date of survey.	Date of approval of survey.	Date when work was ordered.	Date when work was begun.	Date of completion of work.	Progress in tenths.	Estimated date of completion.
Fortune	Mar. 11, 1893	Feb. 7, 1896		Oct. 10, 1896		6	Sept. 30, 1897
Raleigh	Feb. 19, 1897	Feb. 25, 1897		Feb. 26, 1897	Feb. 26, 1897		
Columbia			May 5, 1896	May 5, 1896	May 29, 1896		
Do			May 23, 1896	Aug. 22, 1896	Oct. 10, 1896		
Standish			Oct. 27, 1894	June 28, 1895	Aug. 10, 1896		
Montgomery			Feb. 9, 1896	Feb. 9, 1896	Feb. 15, 1896		
Franklin			July 30, 1896	Aug. 10, 1896	Oct. 17, 1896		
Do			Oct. 21, 1896	Oct. 31, 1896	Apr. 17, 1897		
Do			Jan. 6, 1897	Jan. 8, 1897	June 1, 1897		
Do			Feb. 25, 1897	Apr. 19, 1897		5	July 15, 1897
Cushing			Mar. 25, 1897	Mar. 26, 1897	May 31, 1897		
Do			May 6, 1897	May 7, 1897	May 22, 1897		
Newark	Oct. 28, 1896	Nov. 12, 1896		Oct. 29, 1896	Dec. 5, 1896		
Wahneta	June 19, 1896	July 3, 1896		July 6, 1896	Oct. 21, 1896		
Maine			Mar. 26, 1896	Apr. 21, 1896	June 3, 1896		
Do			June 11, 1896	June 22, 1896	Aug. 31, 1896		
Do			Aug. 4, 1896	Aug. 6, 1896	do		
Do			Apr. 10, 1897	Apr. 13, 1897	Apr. 15, 1897		
Fern			Jan. 16, 1897	Jan. 19, 1897	Apr. 12, 1897		
Castine	Nov. 30, 1896	Dec. 5, 1896		Dec. 3, 1896	Mar. 3, 1897		
Amphitrite			Dec. 20, 1895	June 29, 1896	July 9, 1896		
Do			June 11, 1896	do	do		
Do			July 3, 1896	July 3, 1896	do		
Do			Nov. 23, 1896	Nov. 23, 1896	Dec. 12, 1896		
Do			Dec. 2, 1896	Dec. 4, 1896	do		
New York			Jan. 13, 1897	Jan. 14, 1897	Feb. 23, 1897		
Monongahela	Sept. 18, 1896	Oct. 5, 1896		Oct. 24, 1896	Dec. 10, 1896		
Massachusetts			Oct. 26, 1896	Oct. 27, 1897	Nov. 10, 1896		
Texas			June 9, 1897	June 15, 1897	June 23, 1897		

NAVY-YARD, MARE ISLAND.

The report of the naval constructor at the navy-yard, Mare Island, describes certain work done on the *Baltimore*, *Charleston*, *Concord*, *Hartford*, *Mohican*, *Pensacola*, *Petrel*, and *Ranger*, in ordinary, and on the *Adams*, *Alert*, *Bennington*, *Independence*, *Monadnock*, *Monterey*, *Oregon*, *Philadelphia*, *Thetis*, and *Unadilla*, in commission, during the fiscal year ending June 30, 1897, together with tabular statements (two) covering all repair work during the year.

U. S. S. Baltimore.—Repairs to the *Baltimore* consisted of work authorized April 6, 1896, under a survey held March 16, 1896. This work was begun June 15, 1896, and progressed actively for about eight months, having been delayed during the last five months of the fiscal year by lack of funds. On June 30, 1897, the work was estimated to be 85 per cent completed, and the date of completion to be September 30, 1897.

U. S. S. Charleston.—Work on the *Charleston* was authorized October 21, 1896, in accordance with the recommendations of a board of survey, dated August 1, 1896. With the exception of docking and work in connection therewith, includi [illegible] painting, work on the *Charleston* was not actively enforced dur[illegible] the [illegible] year owing to lack of funds. The estimated date of completion [illegible]

U. S. S. Concord.—The *Concord* arriv[illegible] yard [illegible] was placed out of commission on May 27 followin[illegible] of survey on June 1, 1896, was authorized on J[illegible] masts, gaffs, booms, ladders, forecast[illegible] in ammunition rooms and storerooms, new boats, etc., together with numerous general repairs. In addition to those, the following improvements were made: Old ash chutes removed from outside of ship and new ones fitted on the inside; gun-port tters altered to hinge to the side and down instead of up; life-line stanchions de portable; bulkheads in officers' quarters moved inboard; overhead woodwork ved from officers' quarters; stern torpedo tube removed; midship portion of the main led below watertight deck; new blowers and alterations in ventilating system; alterations in watertight hatches, etc. The vessel was placed in commission May 22, 1897, and sailed the 19th of June following.

U. S. S. Hartford.—Work on the *Hartford* consisted in a continuation of the refitting of that vessel. The principal work consisted in renewing and repairing outside planking and deck planking, renewing copper sheathing, renewing spars, installing ventilation system, fitting new engine seatings, steering gear, laying off and erecting joiner work in officers' quarters, overhauling pumps, steam capstan, etc. This work was estimated on June 30, 1897, to be 82 per cent completed, and the estimated date of completion as March 1, 1899, depending upon the rate of progress of the armament and machinery.

U. S. S. Mohican.—Work on the *Mohican* was begun March 14, 1896, and consisted in laying new main and forecastle decks, replacing fittings on these decks, overhauling and repairing pumps, ventilating engines and system, renewing plumbing in pantry and officers' quarters, repairs to boats, bridge, chart house, ladders, joiner work, etc. The above repairs were estimated to be 25 per cent completed at the end of the fiscal year, the estimated date of completion being November 30, 1897, provided the work proceeds continuously.

U. S. S. Pensacola.—Work on the *Pensacola* was begun August 18, 1896, but has not been carried on continuously owing to lack of funds. The work consisted principally in cutting necessary openings in decks to remove boilers, repairing and renewing planking on berth, gun, and main decks, repairs to outside planking and channels, overhauling joiner work in officers' quarters and store rooms, overhauling and repairing pumps, air ports, sluice valves, flushing system, etc. The work is reported as 70 per cent completed, with the estimated date of completion as September 30, 1897.

U. S. S. Petrel.—The *Petrel* arrived at the yard on May 4, 1896, and went out of commission on May 20 following. Work under a survey was authorized June 19, 1896, consisting principally of the following items: Renewing topmasts, yards, gaffs, booms, strong backs, forecastle and main deck planking, gun foundations, ladders, gratings, joiner work in ammunition rooms and storerooms, wood floor in bunkers, etc., overhauling lower masts, ventilators, davits, stanchions, canopies, skylights, berth deck planking, water-tight doors and hatches, sluice valves, flushing and drainage systems, fire main, plumbing in pantries and lavatories, ash hoists, steam windlass, capstan, steering gear, joiner work in officers' quarters, cementing throughout the ship, etc., including the necessary scaling and painting. The following improvements were made: Removing unnecessary woodwork, shifting bulkheads in officers' quarters inboard, making stanchions portable, fitting ash chutes inboard, fitting additional ventilators and freeing ports, rearranging voice-tube system, enlarging bridge, fitting additional steering wheel on poop, canvasing poop deck, etc. The vessel was placed in commission on December 16, 1896, and sailed March 19 following.

U. S. S. Ranger.—Work on the *Ranger* was begun June 20, 1896, but has not progressed actively owing to lack of funds and more urgent work. The work on the *Ranger* consisted principally in docking, scaling, and painting bottom, repairing rudder, renewing frames and floor plates in machinery space, renewing certain outside plating, deck beams, and stringers, transverse bulkheads, etc., the necessary joiner work having been removed temporarily. The work is reported as 40 per cent completed on June 30, 1897, and the estimated date of completion February 28, 1898.

List of vessels in ordinary on which work has been done at the navy-yard, Mare Island, Cal., during the fiscal year ending June 30, 1897.

Name of vessel.	Date of survey.	Date of approval of survey.	Date when work was ordered.	Date when work was begun.	Date when work was completed.	Estimated date of completion.	Progress in tenths.
Baltimore	Feb. 26, 1896	Apr. 6, 1896	Apr. 6, 1896	June 15, 1896	....	Sept. 30, 1897	8½
Charleston	Aug. 1, 1896	Oct. 21, 1896	Oct. 21, 1896	Apr. 12, 1897	....	Mar. 30, 1898	½
Concord	June 1, 1896	July 2, 1896	July 2, 1896	July 6, 1896	May 15, 1897	....	......
Hartford	Aug. 11, 1893	Sept. 15, 1893	Aug. 29, 1894	Dec. 17, 1894	....	Mar. 1, 1899	8
Mohican	Sept. 18, 1895	Oct. 31, 1895	Oct. 31, 1895	Mar. 14, 1896	....	Nov. 30, 1897	2½
Pensacola	Aug. 3, 1896	Sept. 5, 1896	Sept. 5, 1896	Sept. 5, 1896	....	Sept. 30, 1897	7
Petrel	June 8, 1896	June 19, 1896	June 19, 1896	June 29, 1896	June 2, 1897	....	......
Ranger	Feb. 21, 1896	May 9, 1896	May 9, 1896	June 20, 1896	....	Feb. 28, 1898	4

The repairs to the *Adams*, *Alert*, *Bennington*, *Monadnock*, *Monterey*, *Philadelphia*, *Thetis*, and *Unadilla* were general in character, covering the usual wear and tear on ships in commission. No important alterations or improvements were involved.

The dates upon which the work was ordered, begun, completed, etc., are shown on the table which follows:

List of vessels in commission on which work has been done at the navy-yard, Mare Island, Cal., during the fiscal year ending June 30, 1897.

Name of vessels.	Date of survey.	Date of approval of survey.	Date when work was ordered.	Date when work was begun.	Date when work was completed.	Estimated date of completion.	Progress, in tenths.
Adams			Jan. 5, 1897	Jan. 5, 1897	Jan. 30, 1897		
Alert			July 27, 1896 Apr. 22, 1897	July 27, 1896 Apr. 22, 1897	Aug. 22, 1896 May 15, 1897		
Bennington	Mar. 21, 1896	Apr. 6, 1896	Apr. 6, 1896 Nov. 5, 1896	Apr. 18, 1896 Nov. 19, 1896	Aug. 6, 1896 Nov. 25, 1896		
Independence			May 18, 1897	June 1, 1897		July 25, 1897	3
Monadnock			Oct. 27, 1896	Oct. 27, 1896	Nov. 28, 1896		
Monterey	Oct. 9, 1896	Oct. 21, 1896	Oct. 1, 1896	Oct. 1, 1896	....do		
Oregon (bilge keels)			Dec. 3, 1896 Dec. 19, 1896	Jan. 5, 1897		July 15, 1897	7
Philadelphia			Nov. 4, 1896	Nov. 5, 1896	Nov. 17, 1896		
Thetis	Apr. 27, 1896	May 8, 1896	May 8, 1896	June 15, 1896	Sept. 5, 1896		
Unadilla			Jan. 28, 1897	Jan 28, 1897	Jan. 31, 1897		

U. S. S. Oregon.—Work on the *Oregon* consisted in sending a force of men from the yard to the dock at Port Orchard on March 26, 1897. While in dock the ship's bottom was cleaned and painted and the necessary measurement and templets made for getting out the bilge keels, which are reported on July 1 as ready to be fitted to the ship at the next docking. The estimated time to do the work in dock is forty days. Necessary tools and additional material necessary in connection with the work were prepared for shipment to Port Orchard.

Wheeling and Marietta.—Work on the *Wheeling* and *Marietta* consisted in finishing up such items of work as had been left uncompleted and preparing the vessels for commission. The vessels arrived at the yard on June 12, 1897, after which the masts were stepped and wedged, furniture fitted, mess tables and benches stewed, rigging screws, hawser reels, hose racks, etc., supplied. Previous to arrival, such work on boats and outfits, masts, furniture, and items of equipage ordered to be done at the yard had been completed.

NAVAL STATION, PUGET SOUND.

Statement of work done upon vessels at the Puget Sound naval station from July 1, 1896, to June 30, 1897.

Name of vessel.	Work ordered.	Work begun.	Work completed.
U. S. S. Oregon	Jan. 30, 1897	Apr. 13, 1897	May 8, 1897
Yamaguchi Maru		Oct. 9, 1896	Oct. 10, 1897

The *Yamaguchi Maru* is a Japanese merchant vessel, and was docked by special order of the Bureau of Construction and Repair of September 11, 1896.

Both vessels were docked for the purpose of cleaning and painting bottoms

NAVAL STATION, PORT ROYAL.

The commandant of the naval station, Port Royal, S. C., reports that no work was done on vessels under this Bureau during the fiscal year.

PROPOSALS FOR NEW WORK, ETC.

Following is a schedule of bids received for the construction of battle ships 7, 8, and 9, on Bureau's designs, opened at the Department September 14, 1896:

BATTLE SHIPS 7, 8, AND 9.

Name of bidder.	Place of business.	Amount bid.	
		For one vessel.	For two vessels.
John H. Dialogue & Son	Camden, N. J.	$2,661,000	
Bath Iron Works	Bath, Me	2,680,000	
Newport News Shipbuilding and Dry Dock Co	Newport News, Va	2,595,000	
Union Iron Works	San Francisco, Cal	2,674,950	
The Wm. Cramp & Sons Ship and Engine Building Co.	Philadelphia, Pa	2,650,000	*$2,650,000

* Each.

The chief characteristics of the designs and requirements for the above vessels were given in the last annual report of the Bureau.

Following is a schedule of bids opened at the Department September 18, 1896, for three 30-knot torpedo boats and a schedule of bids opened the same day for additional torpedo boats of 20 and 22½ knots speed. The chief characteristics and requirements of these boats under which proposals were received were submitted in the last annual report of the Bureau.

THIRTY-KNOT TORPEDO BOATS NOS. 9, 10, AND 11.

Name of bidder.	Price bid per boat.			Estimated displacement.		Weights to be carried on trial in addition to completed hull, machinery, and spare parts.			
	For one boat.	For two boats, each.	For three boats, each.	Trial conditions.	All bunkers full and other weights on.	Torpedo gear and torpedoes, R. F. guns, and ammunition.	Coal.	Crew, boats, anchors, electric plant, equipment, etc.	Total.
				Tons.	*Tons.*	*Tons.*	*Tons.*	*Tons.*	*Tons.*
Union Iron Works	$227,500			240.00	298.00	10.00	18.00	7.00	35.00
Bath Iron Works		$194,000	$189,000	145.29	169.54	4.24	9.00	7.05	20.29
Do		235,000		226.65	288.90	4.24	11.00	11.65	26.89
Herreshoff Manufacturing Co	218,000	209,000	206,000	232.14	286.40	10.71	8.93	7.14	26.78
Painton Electrical Steamship and Construction Co	265,000	265,000	265,000						
J. H. Dialogue & Son	260,000	255,000							
Do	275,000	270,000							

TORPEDO BOATS 12-18.

TYPE I—20-KNOT BOATS.

Name of bidder.	Class I.*			Class II.†		
	1 boat.	2 boats.	3 boats.	1 20-knot.	2 20-knot.	3 20-knot.
Columbian Iron Works	$49,000	$49,000 (each)	$49,000 (each)	$45,000	$45,000 (each)	$45,000 (ea
Moran Bros. Co	59,840	58,675 (each)	56,928 (each)	58,240	57,075 (each)	5
Bath Iron Works				‡85,000	81,000 (each)	
Herreshoff Manufacturing Co				40,000	37,500 (each)	37,500 (each)
Wolff & Zwicker Iron Works	49,000	47,500 (each)	45,000 (each)			
Providence Steam Engine Co		51,600 (each)	48,650 (each)			
Lewis Nixon				69,000	68,000 (each)	
The Chas. Hillman Ship and Engine Building Co.	48,500	48,000 (each)				
J. H. Dialogue & Son	69,250	68,500 (each)				
Geo. Lawley & Son Corporation				61,500	57,650 (each)	56,825 (each)

TYPE II—22½-KNOT BOATS.

Name of bidder.	Class II.†			Combination bids.		
	1 22½-knot.	2 22½-knot.	3 22½ knot.	1 20-knot and 1 22½-knot.	1 20-knot and 2 22½-knot.	2 20-knot and 1 22½-knot
Columbian Iron Works	$79,100	$79,100 (each)	$79,100 (each)	$124,100 (both)	$205,200 (all)	$169,100 (all)
Moran Bros. Co	99,216	96,239 (each)	94,255 (each)	155,953 (both)	248,212 (all)	211,234 (all)
Bath Iron Works	§131,000	125,000 (each)	123,560 (each)			
Herreshoff Manufacturing Co	84,000	80,000 (each)	80,000 (each)	120,750 (both)	193,750 (all)	157,000 (all)
Do	92,500	92,500 (each)	92,500 (each)			
Do	82,500	78,500 (each)	78,500 (each)			
Wolff & Zwicker Iron Works	83,800	79,500 (each)	75,100 (each)			
	85,839	81,546 (each)	77,150 (each)			
J. H. Dialogue & Son	120,000	115,000 (each)				
Geo. Lawley & Son Corporation	83,500	80,000 (each)	78,500 (each)			
	102,000	98,000 (each)	97,000 (each)	162,250 (each)	236,000 (each)	215,500 (each)

* Department's plans and specifications.
† Bidders' plans and specifications.
‡ This boat is about the size of Type II boat, but speed proposed is 22½ knots.
§ This boat is about the size of the Type I boat, but the speed proposed is 23 knots.

TORPEDO BOATS 19, 20, AND 21.

[Extract from the act of March 3, 1897.]

INCREASE OF THE NAVY.

That for the purpose of further increasing the naval establishment of the United States, the President is hereby authorized to have constructed by contract not more than three torpedo boats, to have a speed of not less than thirty knots, to cost in all not exceeding eight hundred thousand dollars. And not more than two of said torpedo boats shall be built in one yard or by one contracting party, and in each case the contract shall be awarded by the Secretary of the Navy to the lowest best responsible bidder. And in the construction of said torpedo boats all the provisions of the act of August third, eighteen hundred and eighty-six, entitled "An act to increase the naval establishment," as to materials for said vessels, their engines, boilers, and machinery, the contracts under which they are built, except as to premiums, which are not to be offered, the notice of proposals for the same, the plans, drawings, and specifications therefor, and the methods of executing said contracts shall be observed and followed, and said vessels shall be built in compliance with the terms of said act and in all their parts shall be of domestic manufacture.

CIRCULAR DEFINING THE CHIEF CHARACTERISTICS OF NOT MORE THAN THREE 30-KNOT TORPEDO BOATS FOR THE UNITED STATES NAVY.

In the appropriation for the naval service for the fiscal year ending June 30, 1898, approved March 3, 1897, provision is made under "Increase of the Navy" for not more than three torpedo boats, to have a speed of not less than 30 knots, to cost in all not exceeding $800,000. The boats are to be built under the provisions of the act of August 3, 1886, entitled "An act to increase the naval establishment," as to the materials for said boats, their engines, boilers, etc., except as to premiums, which are not to be offered, save that in all their parts said boats shall be of domestic manufacture.

The Department in advertising for the boats of 30 knots speed, to be built by contract, will invite proposals for the construction of the hull and machinery, including engines, boilers and appurtenances, and equipment, complete in all respects, in accordance with the plans and specifications provided by the bidder. Further information needed in the preparation of designs of these boats will be furnished by the Bureau of Construction and Repair. Any specifications submitted must contain certain customary general requirements usually embodied in specifications prepared by the Department, and bids accompanied by specifications devoid of such requirements will not be considered. These requirements are appended to the circular. Information as to the machinery will be furnished by the Bureau of Steam Engineering, Navy Department, Washington, D. C.

The following elements and qualities must be obtained in all designs:

The boats must not be less than 230 tons displacement, and one not less than 260 tons displacement, carrying the trial weights hereinafter specified.

The Department, in order to leave as free a hand as possible to bidders, has not restricted dimensions, etc., but it is its desire to obtain the best boats possible for the naval service, and in considering the plans submitted due consideration will be given to questions of size, free board, etc., as indicated on such plans.

The average speed to be maintained for two hours, under conditions to be prescribed by the Secretary of the Navy, must not be less than 30 knots. The trial to be made over a course not less than 30 nautical miles in length.

The boats are to be built and fitted complete for sea by the contractors, with the exception of sea stores and of the ordnance and ordnance outfit, which, however, will be fitted and secured in place by the contractors; that is, the contractors will furnish small boats, furniture of all kinds, electric plant, anchors, cables, masts, rigging, awnings, ridge ropes, hatch hoods, miscellaneous equipment, galleys and furniture for galleys of all kinds, and will fit and secure in place all ordnance and ordnance outfit. Information as to dimensions, weight, and approximate cost of ordnance appliances to be supplied by the Government is appended.

The conning towers will be placed in convenient positions, one forward and the other aft.

The spaces allowed torpedo tubes, the torpedoes and appurtenances, and rapid-fire guns are to be shown on the plans of designs submitted. Accommodations will be provided for three commissioned officers and an adequate crew.

An incandescent electric lighting plant must be fitted, but no search light will be required.

The battery for the vessels of not less than 230 tons displacement will consist of not less than four 6-pounder R. F. guns and two 18-inch Whitehead torpedo tubes with four torpedoes. The 260-ton vessel will carry at least six 6-pounder R. F. guns and two 18-inch Whitehead torpedo tubes with four torpedoes. The number of rounds for each 6-pounder gun is 198.

The following weights, in tons of 2,240 pounds each, should be carried on trial in addition to completed hull and machinery and spare parts, with the water necessary for trial:

	Two vessels not less than 230 tons.	One vessel not less than 260 tons.
	Tons.	*Tons.*
Ordnance	12.6	16.5
Coal	20	22
Equipment, outfit, and stores	9	10
Total	41.6	48.5

In case bidders are unwilling to carry, on trial, the full weights desired, they must specify in their proposals the weights, additional to that of complete hull and machinery, with the water necessary for trial, that they propose to carry on trial, such as torpedo gear and torpedoes, rapid-firing guns and ammunition, coal, crew, boats, anchors, cables, electric plant, furniture, equipment, spare parts, stores, etc., also the total coal capacity of bunkers. In awarding the contracts, however, other things being equal, preference will be given to designs proposing to carry the full weights desired.

Any and all designs submitted must be accompanied with complete plans and specifications for building, and such calculations of weights, displacement, and stability as will demonstrate the satisfactory strength and stability of the whole structure.

Intending bidders will be furnished, on application, with the most recent naval specifications for steel, to be returned with their bids, and embodied in their specifications. Modifications desired in these specifications must be shown by erasures and interlineations in the returned copies forming part of the bidder's specifications.

If on trial the average speed of each boat shall equal or exceed 30 knots per hour, the boat will be accepted in so far as the speed is concerned. In case of rejection, any money that may have been paid to the contractors, on account, shall be refunded.

Following is a schedule of the bids received for these boats, opened at the Department June 21, 1897:

Thirty-knot torpedo boats Nos. 19, 20, and 21.

Name of bidder.	Bid for one boat.	Bid for two boats (each).	Length on trial (water line).		Breadth on trial (water line).		Draft to clear screws (trial load).		Displacement (trial).	Indicated horsepower.	Total weights carried on trial.
			Ft.	*In.*	*Ft.*	*In.*	*Ft.*	*In.*	*Tons.*		
Harlan & Hollingsworth	* A $236,000	$233,500	225	0	21	3	7	3	340	7,200	60
	* B 215,000	212,500	212	6	20	8	6	7	276	6,500	50
	* C 213,000	210,500	205	6	20	8	6	7	267	6,500	50
Union Iron Works	No. 1 245,250	No bid.	228	0	20	0	8	0	268	6,400	48.5
	No. 2 225,000	220,000	213	6	19	0	7	0	238	5,600	41.6
Columbian Iron Works (A and B)	A 207,000	A207,500	208	3	19	4	7	6	230	5,600	A 35
	B 192,000	B192,500									B 28.5
Columbian Iron Works (C and D)	225,000	219,000	208	3	19	4	7	6	260	6,000	C 42 D 32
J. H. Dialogue & Son	No. 1 269,000	No bid.	223	4	(†)		(†)		270	6,300	48.5
	No. 2 243,000	239,000	213	4	20	0	8	0	243	5,600	41.6
Geo. Lawley & Son	280,000	No bid.	230	0	22	10	8	9	340	7,000	60
Wm. Cramp & Sons Ship and Engine Building Co.	245,000	No bid.	220	0	20	6	(†)		302	(†)	48.5
Bath Iron Works	217,900	216,000	176	0	18	0	10	0	242	6,000	41.6
Chas. Hillman Ship and Engine Building Co.	230,000	No bid.	216	10	20	7	7	8	270	5,800	48.5
Gas Engine and Power Co. and Chas. L. Seabury Co. (Consolidated)	210,000	205,000	205	0	18	3	8	0	235	5,600	41.5
Wolff & Zwicker Iron Works	214,500	212,000	191	8	20	2	8	6	247.5	(†)	41.6
Richard B. Painton	‡ 225,000	250,000	(†)		(†)		(†)		350	5,000	(†)

* For types "A" and "B," $449,000; for types "A" and "C," $447,000.
† Not stated.
‡ Bid not in duplicate. No certified check.

Chief characteristics of Tugs Nos. 6 and 7 to be built at navy-yard, New York, and navy-yard, Mare Island, respectively.

Length over all	**102 feet 6 inches.**
Length between perpendiculars	**92 feet 6 inches.**
Breadth, extreme, exclusive of guards	**21 feet 1 inch.**
Breadth, molded	**20 feet 11¼ inches.**
Mean draft	**8 feet 9 inches.**
Rig	**Schooner.**
Displacement	**225 tons.**
Initial horsepower	**450.**
Speed (estimated)	**12 knots.**
Coal capacity	**30 tons.**
Steering gear	**Steam.**

EXPERIMENTAL MODEL TANK—COPY OF CIRCULAR INVITING PROPOSALS FOR BUILDING.

NAVY DEPARTMENT,
Washington, D. C., May 3, 1897.

Sealed proposals are hereby invited, and will be received at this Department, Bureau of Construction and Repair, until 12 o'clock noon, Monday, June 7, 1897, at which time and place they will be publicly opened, for the construction, by contract, of an experimental model tank and building at the navy-yard, Washington, D. C. The work is to be done in accordance with plans and specifications furnished by the Bureau, and must be completed within six months from date of contract; payments to be made in five equal installments as the work progresses, with a reservation of 10 per cent from each installment, to be paid upon the full and final completion of the work. Copies of the plans and specifications and forms of proposal may be had upon application to the Bureau, where all other information essential to bidders may also be obtained. The successful bidder will be required to enter into contract, and give satisfactory bond in the penal sum of 25 per cent of his bid for the performance thereof within twenty days from the receipt of notice of the acceptance of his bid. Each proposal must be accompanied by a satisfactory certified check, payable to the order of the Secretary of the Navy, and the check of the successful bidder shall become the property of the United States in case he shall fail to enter into contract and furnish security, as stated above, on the acceptance of his bid. The amount of such check must be at least 5 per cent of the amount of the bid. The checks of the unsuccessful bidders will, upon the award of the contract, be returned to them; the check of the successful bidder will be returned to him on the execution of the contract and bond.

Proposals must be made in duplicate, on forms obtained from the Bureau of Construction and Repair, inclosed in sealed envelopes, marked "Proposals for construction of model tank," and addressed to the Bureau of Construction and Repair, Navy Department, Washington, D. C. The Secretary of the Navy reserves the right to reject any or all bids, as in his judgment the interests of the Government may require.

JOHN D. LONG, *Secretary of the Navy.*

Proposals for experimental tank and building at navy-yard, Washington, D. C.

[Bids opened June 7, 1897, at the Bureau of Construction and Repair, Navy Department.]

No.	Name of bidder.	Amount of bid, Government plans.	Certified check.
1	Washington Asphalt Block and Tile Co., Washington, D. C	$66,000.00	$3,400.00
2	John Jacoby, Wilmington, Del	56,000.00	3,000.00
3	Jas. J. Ryan, Philadelphia, Pa	61,800.00	3,090.00
4	Andrew Gleeson, Washington, D. C	54,328.00	2,800.00
5	Wm. Rothwell, Washington, D. C	59,323.00	Nocheck.
6	D. F. Mockabee, Washington, D. C	59,883.83	3,000.00
7	The National Contracting Co., New York	50,932.00	2,600.00
8	Baldwin & Peake, Washington, D. C	53,158.00	2,657.90
9	The Cranford Paving Co., Washington, D. C	61,000.00	3,100.00
10	John C. Robinson, Chicago, Ill	63,900.00	3,300.00
11	Jas. R. F. Kelley (Kelley & Kelley), New York	51,730.00	2,800.00
12	Houston Construction Co., Philadelphia, Pa	85,803.00	4,300.00
13	The Penn Bridge Co., Beaver Falls, Pa	50,000.00	2,500.00
14	John Pettyjohn & Co., Lynchburg, Va	58,800.00	3,500.00
15	Jas. L. Parsons, Washington, D. C	67,852.00	3,400.00

NAVY-YARD PLANTS.

The Bureau submits below such portions of naval constructors' reports relative to the improvement of plants at the various navy-yards as it deems of immediate importance.

NAVY-YARD, PORTSMOUTH, N. H.

1. I recommend that the two oil storage tanks to hold oil fuel for heating furnaces at steel plant be placed in the ground for security against fire and the necessary pipe connections made with the automatic pump and receiver. These tanks have a total capacity of 16,271+ gallons. Estimated cost, $1,900.

2. That the air compressor be put in place and power connections made with the Corliss engine at the steel plant. Estimated cost, $450.

3. That pipe connections be made with the compressor, automatic pump and receiver, aerated fuel burners, and the plate and bar furnaces. Estimated cost, $400.

4. I would recommend that a trolley be erected through the center of building No. 48, with the necessary branches leading to the machine tools for handling angles and plates. Estimated cost, $2,200.

5. That a beam shed be provided and located as shown on accompanying plan, marked A, and provided with 6 forges, 2 cranes, and overhead trolleys. Estimated cost, $5,000.

6. That a suitable building be erected for the stowage of plates and angles, with overhead trolley and crane. Estimated cost, $4,500.

7. That second story of building No. 45 be fitted for joiner shop, and such woodworking tools be moved from building No. 14 to building No. 45 as may be considered necessary. This change would give ample room and furnish 1,500 square feet more floor space than in their present location. Ample power from the ship fitter's engines located on the floor below can be had, and, in my opinion, would add much to the facilities of this department. Estimated cost, $3,200.

8. That the rooms in building No. 14 now used for joiner shop, etc., be fitted up for cabinet shop, cabinet storeroom, and varnish room, using the third and fourth floors for that purpose. Estimated cost, $3,500.

9. That such machine tools as may be necessary be moved from the lower floor to the second floor, and the room on this floor fitted up as a block shop, block storeroom, and saw filers' room. Estimated cost, $1,200.

10. That the position of such machine tools as it may be considered best to leave on the lower floor, including the shafting, pulleys, etc., be so changed about as to give the best results; and that doors be cut in each end of the building sufficient in size to allow a loaded team to pass through. Estimated cost, $1,000.

11. A suitable galvanizing plant is very necessary. The present plant is in very poor condition, and would be entirely inadequate if there should be an increase of work at this yard. To repair the present plant and to supply furnaces, pots, and tanks. Estimated cost, $3,000.

12. I also recommend that the north end of building No. 45 be fitted for a brass foundry in connection with the ship fitters' shop, as the building on "Seaveys Island" now used as a foundry needs repairs, and is not conveniently located for the foreman in charge. This change would add very much to the facility of doing work with dispatch and economy, and if the location for the proposed dry dock should be used for that purpose the old foundry would have to be removed. Estimated cost, $2,500.

13. Repairs to circular sawmill, building, and plant. The floor of this building is in poor condition, new floor timbers and floor being needed for about 60 feet. From the south end of this building for about 50 feet there is but very little excavation below the sill. The ventilation is very bad, the confined air causing decay in a very short time after repairs. When the repairs are made, I recommend that the earth be excavated for a space of 50 feet in length and the width of the building to the depth of 4 feet below the sill. This will not interfere with the present foundation. Estimated cost, $975.

14. Changes in building No. 59 (boat shop).

First. I would recommend that a trolley be erected under second floor of building No. 59 for better facilities for moving boats from and to the water, as per sketch submitted.

Second. That a hatch be cut through the second floor, to accommodate a 28-foot cutter to be moved to or from first or second floor.

Third. As the lower floor of this building is in poor condition and needs extensive repairs, I would recommend that it be removed and excavated below it and a new floor of yellow pine put in its place.

Fourth. I would recommend also that a set of platform scales, now in store, be set up in lower floor, for weighing boats.

Fifth. I would recommend that changes be made in the bending machine, as per sketch submitted, for better facilities in bending boat timbers.

Total estimated cost, $1,285.

15. New tools to the extent of $10,000.

Practically all of the above recommendations are for comparatively small items that have been a standing necessity for some years past, and which should be carried out in the interests of economy alone at the present time. The addition of a large dock will make still further improvements to the plant desirable.

NAVY-YARD, BOSTON.

1. *New steam engine.*—It is recommended that a new "automatic cut-off" engine of 150 horsepower be purchased for use at the plate shop, the present one being old and not of sufficient power. Specifications for this engine to comply with previous report and recommendations. Estimated cost complete and erected in shop, $3,500.

2. *Addition to boiler and engine room.*—Additional power will be required (one boiler) for the hydraulic and air-compressor plant. It is recommended that in rearranging the plate shops suitable room be provided for this boiler.

3. *Boilers.*—The boilers now in use at the plating fitters' shop require repairs, and are quite weak. A limit has already been placed reducing the steam pressure on them to 70 pounds. The boilers when in good condition will not furnish sufficient steam for all purposes when the plant is in full operation. It is recommended that two new boilers be provided. Estimate of cost: Labor, $900; material, $2,900; total, $3,800.

4. *Pickling tank and connections.*—A pickling tank to be built in connection with the plate rack, located with view to convenience in handling plates. An 18-foot jib crane to be provided. The tanks to be 25 feet 3 inches long by 2 feet 2 inches wide and 6 feet deep. To be built of Southern pine not less than 5 inches thick, matched and tongued, fitted to be calked from the inside, after which the tanks to be lined with thick sheet lead and protected by battens inside. Estimate of cost: Labor, $658; material, $620; total, $1,278.

5. *Ship house.*—The ship houses, lower end of yard, now known as buildings 71 and 73, are in dangerous condition. They were erected many years ago and have been greatly deteriorated by age and decay. It is not probable that they could be utilized for work without a very large expenditure of money to put them in a safe and proper condition. I therefore recommend that No. 73 be removed as worthless.

6. *Brass foundry.*—It is recommended that the foundry be put in good working order. About half the work has already been completed, the material being now on hand for the work.

7. *Lighting and dry dock.*—It is proposed to provide for lighting the dry dock by electricity. In order to do this it will be necessary to run a set of three main wires from the present electric-lighting plant to the dock; from this junction wires to be led each side of the dock, portable preferred. In case of the yard system being required to light a vessel having an electric-light plant of 80 volts potential, a portable fireproofed resistance box to be provided, of sufficient capacity to reduce the yard voltage of 110 to 80 volts. Estimate of cost, $3,500.

8. *Furnaces, plate and angle.*—The plate and angle furnaces at ship fitters' shop require slight alterations. The plant has been installed without regard to the fact that the system proposed for use is a patented process, which necessitates a change in the burners. I therefore recommend that the present burners be removed and forty new ones be substituted; also that the present two Blake pumps used as compressors be removed and a suitable compressor put in; the air receiver to be moved to a more convenient location in the vicinity of the new compressor when installed. Estimated cost for this change, with the right to use the process, $3,700.

9. *Sawmill.*—It is recommended that the present steam engine now at the ship fitters' machine shop be overhauled and repaired and placed in the boiler and engine room of sawmill; also that the two boilers not in use nor required at the dock be moved to the sawmill and put in working condition. This arrangement will give the sawmill independent power. Estimate of cost: Labor, $850; material, $275; total, $1,125.

NEW BUILDINGS.

10. *Carpenter shop and laborers' rigging loft.*—It is recommended that a two-story building be erected on the west side of the dry dock on the site formerly occupied by ship house, known as building 92, for use as a carpenter shop and general rigging loft, also as a place where boats may be hauled up on ways. Building to be 200 feet by 62 feet and two stories high. A building for these purposes is very much needed. The former ship house served for this purpose until removed a few years ago on account of decay of the structure. Cost, labor, $10,000; material, $5,000; total, $15,000.

DRY DOCK.

11. *Dry dock.*—It is recommended that a large-sized modern and improved dry dock be built.

TOOLS.

12. *Schedule of additional tools and material required for construction plant under Bureau's order.*—One set plate-straightening rolls, pulley driven by friction clutches, 6 rolls, 12 inches diameter, 98 inches between housings. Estimated price completed and in position, $4,000.

One horizontal flange punch, 8-inch throat, capable of punching 1-inch steel plates or angles, to be pulley driven, pulleys 24 inches in diameter, 6¼ inch face, speed 176 revolutions. Estimated cost complete and in place, $1,400.

One double-angle shear, capable of shearing angles 6 by 6 inches, pulley driven, pulley 24 inches in diameter by 6¼-inch face, speed 230 revolutions. Estimated cost complete and in position, $1,000.

One hydraulic ram accumulator pump and connections complete, ram 12 inches diameter, 16-inch stroke, and capable of exerting a pressure of 2,000 pounds per square inch. Estimated cost complete in running order, $2,200.

One hydraulic riveter, capable of riveting plates 36 inches wide, and rivets 1 inch in diameter. Estimated cost, $550.

Two hydraulic riveters capable of riveting plates 54 inches wide and rivets 1 inch in diameter. Estimated cost, $1,500.

Two No. 2 combined punch and shear, complete with electric motor for driving same, equal to Hilles & Jones Co., as per catalogue, page 22. Estimated cost complete and ready for use, at $1,250 each; total $2,500.

Two shunt-wound drill motors, capable of developing 3 horsepower by brake, with a difference of potential of 100 volts, each motor to be provided with a strong oak base, swivel trucks, and 100 feet of flexible wire connections. Estimated cost per motor, $750; total, $1,500.

One 20-horsepower portable engine and boiler with frame-truck hoisting gear, belt pulley, and independent steam pump, boiler to be vertical cylinder 42 inches in diameter, 8 feet high, containing 82 2-inch tubes 60 inches long, engine to be double-cylinder type with cylinders 7 inches in diameter, stroke of piston 12 inches, and must have power to lift a weight of 5,000 pounds; estimated total weight 6,000 pounds. Estimate of cost, $1,250.

One heavy pulley-block traveling crane, equal to the Yale & Towne, having a spar of 26 feet, and capable of transporting a weight of 10,000 pounds, to be provided with trolley and pulleys, and propelling gear complete. Estimate of cost ready for use, $1,100.

Two No. 9 Stow portable drills and all attachments complete. Estimate of cost each $220, $440.

Two No. 6 Stow portable drills and all attachments complete. Estimate of cost each $157, $314.

One cutting-off circular saw, 26 inches diameter, mandrel hole 1⅝ inches diameter, No. 12 gauge. Estimated price, $12.

One circular saw, splitting, 26 inches diameter, mandrel hole 1⅝ inches diameter, No. 10 gauge. Estimate of cost, $12.

One cutting-off circular saw, 17 inches diameter, mandrel hole 1⅝ inches diameter, No. 12 gauge. Estimate of cost, $6.

One boring and turning mill, 60-inch swing, and to take on work 28 inches high under the tool holders, boring bars of steel forging with 20-inch traverse. Estimated price, $2,000.

One automatic knife-grinding machine, to grind planer knives, 30 inches long. Estimated cost ready for use, $150.

One suspended rotary-bridge crane, including suspended track and connections, fitted with 3 arms, trolley and pulley to each arm, with its trolley, pulley, and connection to be capable of lifting 6,000 pounds; length of arms, 24 feet, to be equal to the Yale & Towne crane. Estimated cost ready for use, $1,200.

The Boston yard requires extensive improvements and alterations to put it on an efficient basis, which will be absolutely necessary in the event of building a new dock there, or of providing for the stowage and preservation of reserve torpedo boats.

At the present time, however, the same appropriation is asked as for the other yards. This amount will be devoted to the necessary improvements to engine and boiler plants, completing improvements to foundry and furnaces already begun, and to a part of the new tools required.

Items 5, 10, and 11 have been referred to the Bureau of Yards and Docks.

NAVY-YARD, NEW YORK.

1. Of the various shops in the construction department, the machine shop, or that of the inside ship fitters, is the one most in need of increased facilities in the way of modern machinery, and I recommend the purchase and installation of the following machines:

One 72-inch screw cutting lathe	$5,400
One 37-inch screw cutting lathe	2,500
One 2-spindle centering machine	350

One Universal radial drilling machine, 84-inch radial arm	$1,800
One 50-inch vertical drilling machine	760
One 32-inch vertical drilling machine	375
One 24-inch vertical drilling machine	275
One No. 3 Universal milling machine	800
One No. 4 Universal milling machine	1,200
Tools and special attachments for these milling machines	600
One 90-inch spur and worm gear cutting machine, with set of tools complete	3,000
Total	17,060

Owing to the frequent use of worm and worm-wheel gearing in the auxiliary machinery on board ship, pertaining to construction and repair, I consider it of the utmost importance that the last-named machine should be obtained for use as soon as possible.

2. I recommend that the construction foundry be moved into building 12, in place of the present pattern shop, which should be moved into building 14 with the joiner shop. This will permit of the better utilization of the woodworking machinery and keep similar work in one building.

The present foundry is inadequate and inconvenient, and the space it occupies will be required for another purpose.

I estimate the cost of new furnaces, cupola, cranes, core ovens, etc., together with the cost of moving, at $12,000.

4. I am satisfied that it will be economical in the expenditure of fuel and attending labor to dispense with the steam engines in building 12, the plumber shop, and building 11, the smithery, and replace them by electric motors, for which the present electrical plant is sufficient by the addition of one dynamo, which was originally contemplated in the extension recommended in my preceding annual report, and now complete except in that respect.

I estimate the cost of installing these motors, extra dynamo, the new lines and switches required, at $6,000.

5. The sawmill requires a timber planing and dressing machine to replace the inferior machine now in use, which is worn out beyond repair. Estimated cost, $2,000.

6. For use in cleaning paint and rust from the bottoms and interiors of ships under general repair, I recommend the purchase of a sand-blast apparatus, consisting of three No. 6 sand blasts, with air reservoir and steam-driven compressor. Estimated cost, including installation, $4,000.

7. For the joiner shop, I recommend the purchase of a chain mortising machine, which effects a considerable saving of labor. Cost, including erection with a set of tools complete, $500.

8. In order to further economize the use of steam at the various boiler plants, I recommend that each be fitted with an automatic damper regulator. Estimated cost, fitted complete, $690.

9. The machinery in the block shop is antiquated, and methods pursued would permit of much improvement, both in the quality of the blocks and the cost of their production, if improved machinery were substituted both for wood and metal work. I recommend the purchase and installation of one 36-inch band saw, one 14-inch jointing machine, one 21-inch back-geared drill, one 12-inch engine lathe, two hand sensitive drills. Estimated cost of purchase and erection, $2,500.

The Bureau believes there is a necessity for all the above items and recommends purchase, at an estimated cost of $42,250.

Navy-Yard, League Island.

IMMEDIATE REQUIREMENTS.

1. *Engine house.*—In 1893 there was installed for running the machinery of the iron-plating shop a 150-horsepower Corliss engine, which, up to this time, we have never been able to utilize, for the want of a proper building to cover the same. We are compelled to keep the engine covered with tallow and burlap for protection, and to use instead an old and much-worn engine of an obsolete type. A new building is urgently recommended, the estimated cost being $6,800.

2. *Boiler house.*—The boilers (two in number), which were erected in 1893 and are to supply the sawmill and ship-fitting shop with power, are housed in a temporary wooden structure, which is very much cramped and dangerous from fire. It is recommended that a building, to be composed of angle and T-iron frame and corrugated iron, galvanized, for covering, be erected, at an estimated cost of $3,400.

3. *Furnaces.*—This department labors under a great disadvantage for the want of proper angle and plate furnaces. Plans Nos. 10, 11, and 12 show general outlines

of the same as proposed. These are similar to furnaces used at Sparrow Point, and are reputed to be of a very efficient type. These furnaces, including bending slabs, can be erected at a cost of about $13,800.

4. *Boat shop.*—The next building in importance which is needed is a boat shop. At present the only facilities for carrying on this work are within the old frigate house, and this is done at a great disadvantage as regards economy and dispatch of work. The building being of wood, and approximately fifty years old, can not last much longer, and is only maintained in its present condition by careful attention to its supports. The building can not be considered safe, and the boat shop located in the second story is unhandy for the purpose of taking in and launching boats. It is also very dark in winter, and is only heated to a comfortable temperature with great difficulty. I therefore strongly recommend the erection of a brick building 400 feet long by 65 feet wide (exterior dimensions), two stories high, to be located as shown on general plan No. 1, the ground floor of which to be used as a boat-building and repairing shop and the north end as a cooper and block shop. The engine running the machinery for the joiner shop is located only 60 feet to the eastward of the proposed boat shop, and this engine is of sufficient capacity to run the machinery of the proposed shops. This building, it is estimated, could be erected for $130,000.

5. *Boat shed.*—There has never been any provision or accommodation for the stowage of boats belonging to vessels lying in reserve and sent on shore for safety and preservation, and we are therefore compelled to use room which is valuable and much needed for other purposes. As it is likely there will always be vessels lying up in reserve at this station, I respectfully recommend that a corrugated-iron building 400 feet long by 60 feet wide (exterior dimensions), to be located as shown on general plan No. 1, be erected. This building, it is estimated, could be erected at a cost of about $15,000.

6. The following additional tools are recommended to be purchased for use in the boat shop:

One 16-inch screw-cutting lathe	$500
One 20-inch screw-cutting lathe	800
One Acme double-head screw-cutting machine	600
One radial drill press, 60-inch	1,100
One triple-gear shaping machine	400
One 2 by 24 foot turntable turret lathe	1,100
One hand bending roll, 4 by 48 inches	100
One centrifugal chip and waste cleaner	125
One multiple drilling machine	2,800
One grindstone, iron frame	80
One Detrick & Harvey open-side planer	3,000
One plate shearer, 8 inches between housing	4,000
One heavy vertical milling machine with angular motion	1,200
One small milling machine	300
One small drill press	100
One engine lathe	260
Three sets Morse twist drills, one-fourth to one-half inch	75
Total	16,540

The following tools and appliances under the proposed ship-fitting shed are recommended:

Plate and angle furnace	$9,000
Bending slabs	4,800
Hydraulic keel-plate bender	8,000
Tanks and cranes for pickling plates	2,500
Total	24,300

FUTURE IMPROVEMENTS.

7. *Ship-fitting shop.*—As the work in this shop requires considerable handling from one machine to another while being worked, and the introduction of heavy armor for our modern ships necessitates the introduction of some permanent mode of lifting and carrying this work, I would therefore recommend the installation of an electrical traveling crane of 20 tons capacity; also an 80-horsepower generator for furnishing the power to this crane. I would further recommend that the framing for carrying this crane be built entirely separate from the main framing of the building. This could be accomplished by building box columns and stepping them on the same foundations as the supporting columns of the building. These columns

would receive guides for carrying crane, and be securely tied to main columns with tie plates, making the whole a strong and safe construction.

Estimated cost of crane	$12,800
Estimated cost of generator, wiring, etc	2,550
Estimated cost of girders, etc	7,000
Total	22,350

8. *Ship-fitting shed.*—To carry on repairing upon ships at the wharves or in dock with dispatch and economy a ship-fitting shed is recommended. The proposed structure is 274 by 100 feet, and in close proximity to the ship-fitting shop. Only iron and glass are used in its construction. The sides consist solely of sliding doors, each door sliding inside and outside the posts. This arrangement is labor saving in that it is possible to take work out of the building at any part of it with less handling than where doors are placed at certain intervals. Then, again, light and ventilation can be had to a greater extent, making it convenient for carrying on such work as can not be accommodated in a ship-fitting shop. It is suggested that under this shed should be located the furnaces and bending slabs, the scrive board, plate-pickling baths, hydraulic keel-plate bender, and such smaller tools as punches, shears, multiple drills, etc., as require considerable space when working long plates and angle bars. It is further contemplated to place the brass foundry, tinning, plumbing, and galvanizing shops under the roof of the ship-fitting shed. The present brass foundry is located near the steam engineering building, and is not in a convenient place. The house is of frame, and, as all the buildings in the yard ought to be made as nearly indestructible as possible, it is recommended that a new brass foundry be built to be constructed of the same material and uniform with the new boiler house proposed. I beg leave to urgently recommend an appropriation for this ship-fitting shed, as it must prove itself a great convenience for work that can not well be carried on in the ship-fitting shop, and would do away with the erection of detached shops and buildings, such as the boiler house, brass foundry, plumbing, tinning, and galvanizing shops. The estimated cost of this ship-fitting shed is $58,221. The cost of the proposed new boiler house is $3,400.

9. *Smithery.*—The present smithery is a frame building constructed about nineteen years ago. It is 254 by 40 feet and 20 feet high above the eaves. Four years ago this building was thoroughly repaired and is probably good for eight or ten years longer. The north end contains the engine and boilers, occupying 64 feet in length, next to which a space of 26 feet has been fitted up as a tinning, plumber, and copper shop, leaving 191 feet for the smithery proper. This space accommodates eighteen fires and three steam hammers of 200, 400, and 800 pounds, respectively; these hammers are very much out of date and of the slow-striking type. I would therefore recommend the purchase of two additional ones of 500 and 1,000 pounds, respectively. Estimated cost of hammers, $1,000. I would also recommend canopies over each forge to carry off the smoke which accumulates in great quantities when fires are started. Estimated cost of canopies, $650. The capacity for work is very limited, owing chiefly to the lack of heavy hammers, nor would it be possible to introduce any of the larger sizes because of the limited space in every direction. The chief objection to this structure is the material of which it is built, and it would not be advisable to either enlarge it or introduce any very large hammers. While it is not likely that a suitable shop will be built for some years, I have anticipated such a contingency and outlined in a general way my idea of a smithery capable of turning out all the work that may be demanded from a thoroughly equipped navy-yard. Its proposed location is indicated on plan 1. It contemplates two separate shops 400 feet in length with an L at each end of 56 feet and 75 feet outside width. These buildings are placed so as to form a quadrangle with a driveway of 20 feet between them, giving access to the interior space between the buildings 125 by 250 feet. The engine and boiler houses are located in this courtyard. The west building is to be used for heavy forging and angle smithery. It will contain four reverberatory furnaces, assorted heavy steam hammers, and an overhead traveling crane operated by electricity. To prevent as much as possible the accumulation of smoke which usually fills the shops in the mornings when fires are started and during muggy weather when there is little draft, it is proposed to fit a canopy over each fire to which a pipe is attached, the latter communicating with a central flue running under ground throughout the entire length of the shop out into the smokestack into the yard. I believe that a suction of air through this main flue induced by fans would greatly reduce, if not entirely remove, the dense smoke which otherwise would have no outlet, except through the roof, skylight, or open window. The east building is designated for general ship-smith work, and contains sixty-one forges, steam hammers, and other appliances, and sufficient space for material required to be kept on hand for daily use. The estimated cost of these two smitheries is $310,000.

General plan No. 1, referred to, and a plan showing the general design of boat shed proposed in paragraph 5 are attached to this report.

The items of the naval constructor's report covering work under the cognizance of the Bureau of Yards and Docks have been referred to that Bureau.

The buildings referred to in paragraphs 1, 2, 4, and 5 above are urgently needed. The boat shed referred to in paragraph 5, owing to the recent orders concerning the preservation of boats of ships in reserve, is of especial importance.

The amount of repair work at this yard will be considerably increased since the formation of the reserve fleet, and the present facilities for carrying on such work are limited.

Reference to the Bureau reports for the fiscal years 1885 and 1889 will show that the practice of placing modern vessels in reserve instead of in ordinary was proposed by it, and the necessity for building up a substantial and efficient plant, both on this account and on account of the strategical advantages possessed by this station in the event of war, was set forth at some length.

The appropriation asked for at the present time will be sufficient only for a part of the immediate requirements. With the addition of new buildings proposed, additional tools and appliances will be required, although the funds needed for this purpose under the Bureau of Construction and Repair will not be excessive.

NAVY-YARD, NORFOLK, VA.

1. Too much stress can not be laid on the necessity for an additional dry dock of sufficient size to accommodate the largest ships now in the service or likely to be added. The larger of the two existing docks is of barely sufficient width at the entrance to allow the docking of ships of the size of the *Texas* at light draft, and when that ship is at load draft it becomes practically impossible to dock her without injury. A suitable site is available adjacent to the present wooden dock.

2. Lack of berthing space threatens at times to seriously reduce the efficiency of the yard. On several occasions it has occurred that both dry docks and all the available berthing space were in use, and it has been necessary to berth a ship at St. Helena, across the river from the yard. The timber basin is no longer of any use for its original purpose, and has recently been practically cleared of the large amount of timber which had accumulated in it; and I recommend that the part lying between Rowan avenue and the river be deepened, surrounded with retaining walls, and supplied with a swing bridge across the entrance. The berthing space thus obtained would be especially valuable on account of its nearness to the shops. The portion of the timber basin lying to the west of Rowan avenue should be retained for the stowage of spar timber.

3. The shipfitters' shop is entirely too small to accommodate even the present inadequate supply of tools, and the building is incapable of enlargement. I strongly concur in the recommendation made by my predecessor that a new shop be built on the ground to the south of the present shop, adjacent to the timber basin, and supplied with cranes, elevators, and other modern appliances, and with sufficient new machinery to enable the work to be properly done, including a power plant and electrical plant.

4. The building now used as the shipfitters' shop should when vacated be converted into a plumbers' shop, for which it is of ample capacity.

5. The repairs recommended in my last report for the building containing the foundry and shipsmiths' shop have been authorized and are to be immediately proceeded with. The foundry is very much cramped and should be enlarged to take in the space occupied by the plumbers' shop, when that department is transferred to the present shipfitters' shop. The whole building should then be fitted with furnaces, cupolas, forges, and air blast, in accordance with latest practice.

6. My estimate for the above changes in shops, including rearrangement of shop interiors, new tools and equipment and installation of same, is $150,000, and the expenditure of this sum would be amply justified by the increased economy and rapidity of the work.

7. There is great need for a large floating derrick, and such a derrick should be built and maintained by this department. A 100-ton derrick could be built for $85,000,

and I recommend that this be done. The need for this derrick has been repeatedly pointed out by my predecessor.

8. Owing to the considerable distance (nearly 2,000 feet) between the shops and the dry docks, it would greatly decrease the cost of handling material if this department had a 10-ton locomotive crane and car. I recommend the purchase of such a crane; cost, $4,300.

9. When ships are in the dry docks, or near them, a great deal of time is lost by reason of their considerable distance from the shops, and it has frequently been necessary to erect temporary sheds near the dock to facilitate work. I therefore recommend that a small shop be built just south of the timber dry dock and supplied with a few machine tools, so that it will not be necessary to travel so often from the ships to the shops. The tools could be driven by means of electric motors operated from already established electrical plant. This shop should be provided with sheds for storage of docking gear. Estimated cost of machinery and installation of same, $20,000.

10. I recommend that these tools be supplied; cost, $55,655:

SHIP SMITH SHOP.

*Foot bolt header	$140

PLUMBER SHOP.

*One combined punch and shears to punch one-half inch hole in three-eighths inch iron and to cut 36-inch sheet No. 12 gauge iron	$325
*One power and hand machine for cutting off and threading pipe one-half inch to 4 inches, with extras	525
*One hydraulic machine for bending pipe	815
One small electroplating tank and outfit for nickel plating	100
*One buffing lathe, buffing wheels, and extras	85
Total	1,850

SHIP FITTERS' SHED.

One 16-inch swing engine lathe, with back gear	$400
One set plate-bending rolls, power driven, to take a 14-foot plate capable of rolling a one-half inch plate into a 12-inch cylinder	5,000
One set plate rolls, hand and belt, to roll three-eighths inch plate into cylinder 8 feet long	1,000
Two patent double-chain screw hoisting machines, to lift 6,000 pounds	200
One steam-driven combined punch and shear with 60-inch throat, capable of punching a hole 2½ inches diameter in 2½-inch plate and to shear 2½-inch plate	10,000
One hand jib crane similar to cranes in ship fitters' shed, capacity 6,000 pounds.	700
One screw machine with chasing apparatus and back gear and automatic feed to cut studs up to 2 inches diameter	1,000
One hydraulic plate bender to take plate 24 feet long and to be capable of bending 1½-inch plate cold	15,000
Six electric drill motors, 2 horsepower	2,400
Total	35,700

SHIP FITTERS' SHOP.

* One No. 3 Universal milling machine, Brown & Sharpe's Catalogue, page 8.	$1,500
* One No. 2 Universal grinding machine, Brown & Sharpe's Catalogue, page 44.	1,000
* One 10-inch shaper	350
One twist drill grinder for drills one-fourth inch to 2½ inches	300
* One pipe cutter, with adjustable dies, for pipe 1½ inches to 6 inches	1,000
Total	4,150

JOINER SHOP.

*One 8-inch four-sided molder, with extras	$750
Three Universal trimming machines, with extras	375
One Buck's mortising and tenoning machine for blind stiles, with extras	175
*One buffing lathe and fittings, No. 1½	85
*One Buck's blind slat and crimping machine, complete	75

* One door and clamping machine, with sash drawing attachment, etc	$160
One Dado variety saw bench, with joiner attachment and extra saws	450
One power feed jointer and planing machine, 20-inch	300
* One planing, panel-raising, and polishing machine, No. 2, to plane 24 inches wide and one-sixteenth to 6 inches thick	450
One 30-inch pattern maker's lathe, No. 7, iron bed, with chuck and face plates.	450
* One Royal Invincible sander, 60-inch, with attachments	1,800
* Renewing and extending system for taking care of shavings and sawdust	3,000
Total	8,070

BLOCK SHOP.

One 20-inch patternmakers' lathe, iron bed	$400
One standard ripping saw table with accessories	300
Total	700

BOAT-BUILDER'S SHOP.

One No. 3 ripsaw bench, with extra saws	450
One frame-bending machine	2,500
One four-roll, double cylinder, planing and matching machine	800
Total	3,750

SAWMILL.

One No. 5 band resaw, 48-inch wheels	1,000
* One band-saw scarfing machine	175
* One brazing iron forge	45
* One retoothing machine for band saws	75
Total	1,295

Of the tools mentioned in above list, those marked with a * are most urgently needed, and their immediate purchase, at a cost of $12,355 is recommended.

The subject-matter of paragraphs 1 to 5 has been referred to the Bureau of Yards and Docks.

The recommendations of paragragh 10, as to tools immediately required to the extent of $12,355 is deemed of the greatest importance.

The estimates of paragraphs 6 and 9, involving $150,000 and $20,000, respectively, for fitting up new shops proposed, together with the necessary rearrangement of present shops is mainly contingent upon the appropriation for those buildings.

The recommendation of paragraph 8, as to a locomotive crane, is considered important, as is that of paragraph 7, concerning a large floating derrick, which has been needed for some years past. Under the proposed appropriation, the former could be supplied, and material for the latter obtained, to be built as funds would allow.

NAVY-YARD, MARE ISLAND, CAL.

1. This navy-yard is now, and will be for many years to come, the only one on the Pacific Coast where ships in commission can receive periodical dockings and repairs necessary to maintain their efficiency. At the present time there are also eight ships in ordinary which are undergoing extensive repairs and improvements or which are fitting out preparatory to commissioning. The increasing demands on this yard for such work consequent upon the increasing number of modern naval vessels is not thoroughly appreciated. With the exception of being unable to dock first-class battle ships, this navy-yard can now perform all work of every nature which may be necessary on naval vessels, but the capacity of the plant is so small and the lack of labor-saving appliances is so great that the cost of all work is unnecessarily large, and when work is prosecuted with dispatch on any one ship the work on all others must usually be delayed.

2. This navy-yard should be capable of efficiently, economically, and rapidly executing extensive repairs on two battle ships simultaneously, without delaying important work on cruisers, gunboats, and torpedo boats. This can only be secured by increasing the number of docks, shops, and those labor-saving appliances which experience has shown are necessary for the efficient administration of private establishments. At the present time these facilities are notably limited, but they should be increased as rapidly as practicable.

3. *Dry dock.*—The necessity for an additional dry dock would appear self-evident. At the present time this navy-yard has only one, which is almost continuously employed. In cases of emergency the greatest embarrassment might be caused when the only dock is immediately required for another vessel when already occupied. The inability of the present dock to contain battle ships, owing to its small size, is the most serious of all the yard's deficiencies, and is the one defect which will cause the most vital delays in times of emergency. This location proposed will permit of the most economical construction, as the present pump house can be utilized, the present system of railroad tracks, roadways, etc., will not be disturbed, and the inclination to the water front will minimize the risk in docking large ships with the rapid tidal currents here prevalent. The shipwrights', sparmakers', calkers', and riggers' lobbies are scattered through various buildings. In the space between the present and proposed docks a suitable building should be arranged which would accommodate these shops, the docking gear, and a small combination shop for making minor repairs to ships in dock.

4. *Ship-fitters' shop.*—The new building will be ready this year, and should be equipped for use at once. The present shop is totally inadequate to meet the continual demands upon it, and much work must be slowly done by hand labor which can be done by machine tools and appliances more economically, quickly, and efficiently.

Removing and installing tools from old shop	$2,100
New shafting and belting	2,500
Electric motors for shafting	4,500
New tools	35,000
Total	44,100

5. *Machine shop.*—An increased number of tools is necessary to prevent delays, which occur continually because the shop can not keep pace with the demands upon it from foremen in charge of work on ships.

Lathes	$3,200
Drills	1,800
Slotter	1,700
Milling machine	650
Boring mill	1,600
Small tools	3,000
Total	11,950

6. *Electric motors.*—The small plant installed last year has already shown its economical value. Small drilling and ventilating motors have been used to advantage, and the motor used in the portable workshop has saved much labor. Other Departments are now proposing to utilize electricity for capstans, elevators, etc. The experience of private establishments using electric motors has been favorable, and this system of economically distributing power should be utilized where desirable. I recommend the capacity of the present plant be doubled at once, and that electric motors be largely used in the new ship-fitters' shop. Estimated cost, $12,000.

7. *Steam plant.*—The extension of steam piping to engines, pumps, hammers, etc., has necessarily been carried on in an unsystematic manner, with resultant waste in coal expenditure. It is recommended that this piping be rearranged, so that this unnecessary waste may be avoided. Estimated cost, $5,000.

8. *Pneumatic plant.*—Practical experience in navy-yards and in private shipyards has shown the economical advantages of the pneumatic system for cleaning ships' plating, for hoists, elevators, small tools, blowers, etc. Estimated cost of installing a small pneumatic plant, which can afterwards be extended, $6,200.

9. *Timber shed.*—There is but one permanent timber shed, and it is now so full of hardwoods that additional lumber can only be stowed at a very large expense for handling. There are now over 400,000 feet, B. M., of deck planking, timber, etc., stowed outside of this shed under temporary shelter, and about 150,000 feet, B. M., will shortly be delivered, which must also be stowed outside. It is necessary to keep large quantities of lumber on hand in order that it may be seasoned when required for use, but if not properly protected from sun and rain it rapidly deteriorates.

Additional timber sheds are absolutely necessary. The arrangement proposed is shown on plan 2295.

10. *Dry kiln.*—It is not practicable to obtain seasoned lumber on this coast except at exorbitant prices, with long delays. It is recommended that one end of the new timber shed, recommended elsewhere, be arranged as a drying kiln. Estimated cost, $2,100.

11. *Smithery.*—Upon the removal of the foundry a reverberatory furnace should be provided in its present location, to utilize the large amount of scrap metal continually accumulating. Estimated cost, $3,000.

Some additional tools are also necessary:

Drill press, radial	
Punch and shears	
Small tools	[illegible]
Total	5,900

12. *Joiner shop.*—Additional tools and appliances are necessary to perform work more cheaply. Estimated cost:

Saws	$1,800
Mortiser	600
Sanding machine	1,700
Small tools	1,200
Removing sawdust and shavings	2,100
Total	7,400

13. *Plate rack and pickling tank.*—Plates are now stowed in various locations and are handled and pickled at an excessive cost. It is recommended that a suitable plate rack be constructed, provided with overhead traveling crane which will manipulate the plates in the rack and also in the pickling tank. Estimated cost, $9,500.

14. *Torpedo-boat stowage.*—The rapid deterioration occurring in the hulls and fittings of torpedo boats afloat in ordinary necessitates providing suitable arrangement for storing them out of water under shelter. There is shown in outline on plan 2295 the arrangement and location proposed in my recent letter, which provides for rapidly housing or floating any boat at any time.

15. *Coal shed.*—Some of the coal of this department is stowed in temporary wooden sheds which are now greatly decayed, but the greater portion is stowed in the open air and deteriorates rapidly from exposure. It is recommended that a coal shed be built for the stowage under cover of all the coal used by the departments of yards and docks and construction and repair, about 6,000 tons. An outline sketch of the proposed shed is shown on the tracing of plan 2295-A, forwarded herewith. It is proposed to arrange the shed so that cars may be run from the coal wharf and dumped directly into the bins, from which it can be distributed as required.

16. *Electric lighting.*—A number of shops are not provided with arrangements for electric lighting, and the fixtures in place require repairing. It is very necessary that all the shops should be efficiently lighted, so that night work can be performed in cases of emergency.

17. *Foundry.*—The building now used for this purpose is too small and too poorly equipped to perform the necessary work economically. It is recommended that when the ship fitters' tools are removed to the new shop the space thus vacated be fitted as a foundry in the manner outlined on plan 2295-A. Estimated cost, $9,000.

18. *Block and spar shop.*—A drill press is required to facilitate work; additional shelving and racks are necessary to separate and stow materials. Estimated cost, $1,280.

19. *Boat shop.*—A drill press and a planer are required, also additional shelving and racks for the stowage of materials. Estimated cost, $1,600. Owing to the large amount of boat work in progress and the lack of space in the boat shop, many boats must be stored and repaired elsewhere; the cost of repairs thereby is unnecessarily great. It is recommended that a portion of the street adjacent to the boat shop be covered over with a light galvanized iron roof having suitable skylights. Boats can then be repaired or built at less cost and with greater rapidity. The proposed outline arrangement is shown on plan 2295-A.

20. *Sawmill.*—The tools are obsolete in type and require continual repairs; many labor-saving appliances are absent. Extensive improvements are not recommended at this time, but a moderate expenditure for repairs and minor improvements is very desirable. Estimated cost, $1,700.

21. *Wharfage.*—With the present limited water front, vessels must be hauled out to buoys because there is no berth for them, and work must be suspended or else performed at an increased cost. A continuous extension of the quay wall is necessary.

Plans 2295 and 2295 A, referred to above, are attached to this report.

Paragraphs 1, 2, 3, 9, 10, 15, and 21 have been referred to the Bureau of Yards and Docks.

The recommendations contained in paragraphs 4, 18, 19, and 20, at an estimated cost of $48,680, are considered the most important.

The recommendations in paragraphs 5, 6, 7, 8, 11, 12, 13, and 17, involving an estimate of $66,350, are deemed important, as requiring funds at some time in the near future.

Paragraph 14, concerning the stowage of torpedo boats, has been covered in the main body of the Bureau's report. Reference to plan appended shows an excellent location for such an arrangement.

I have the honor to be, very respectfully,

PHILIP HICHBORN,
Chief Constructor, U. S. N., Chief of Bureau.

The SECRETARY OF THE NAVY.

REPORT

OF THE

CHIEF OF THE BUREAU OF STEAM ENGINEERING.

DEPARTMENT OF THE NAVY,
BUREAU OF STEAM ENGINEERING,
Washington, D. C., October 1, 1897.

SIR: In obedience to your order of July 6, 1897, the following annual report of the operations of this Bureau during the past year, together with the estimates for the fiscal year ending June 30, 1899, is respectfully submitted:

APPROPRIATION, STEAM MACHINERY, 1897.

Amount appropriated for fiscal year ending June 30, 1897; act approved June 10, 1896	$728,500.00	
Deficiency appropriation; act approved December 22, 1896	200,000.00	
Total appropriated		$928,500.00
Labor in navy-yards and stations in repair of steam machinery, boilers, etc., of naval vessels fitting for sea service, preservation and repair of tools, handling and preservation of materials, stores, etc	510,863.48	
Purchase of materials, stores, machine tools, freight, and incidental expenses	347.967.97	
Payments for repairs, materials, freight, and incidental expenses for ships on foreign stations	62,524.19	
Total	921,355.64	
Less repayments by transfers in adjustment of appropriations	3,123.81	
Total expenditures		918,231.83
Balance on hand		10,268.17

This balance of $10,268.17 will be required for payment of bills for purchases of supplies already ordered.

GENERAL OPERATIONS OF THE BUREAU.

Plans and specifications for the machinery of tugs Nos. 6 and 7 have been prepared, besides detail drawings of the new machinery for the *Chicago* and the *Hartford*, and the drawings needed for the modernizing of the machinery of the *Atlanta*. In addition, an immense amount of work has been done in the careful inspection before approval of the detail drawings of the machinery of the vessels building by contract.

Plans and specifications have been made for new boilers for the Coast Survey steamer *Blake*.

The machinery of hydraulic plant of the *Texas* has been improved by the installation of larger compressors and providing increased accumulator volume.

The *Brooklyn*, *Iowa*, *Wilmington*, and *Porter*, during the fiscal year, were prepared for commission after delivery by the contractors, and the *Puritan*, *Concord*, *Castine*, *Petrel*. *Vesuvius*, and *Ericsson* after overhauling at the navy-yards.

The new machinery of the *Chicago* at the New York yard is in an advanced stage of completion, and the installation on board has commenced. The water-tube boilers (Babcock & Wilcox) built by contract are ready for delivery, and the erection of the entire machinery can proceed as soon as the seatings, which are part of the hull work, are ready.

The work of remodeling the three-cylinder compound engine of the *Atlanta* into a triple-expansion engine has commenced at this yard, and a contract for the water-tube boilers, which will form the major part of her boiler power, has been made.

The new boilers for the *Dolphin* are practically completed and ready for placing on board at the New York yard.

Fair progress has been made with the new machinery for the *Hartford* at Mare Island, but there has been some delay in obtaining material.

At the Norfolk yard, the machinery of the *Samoset* (tug No. 5) has been completed and the vessel is now in service. Work on new machinery for the *Fortune* is in an advanced state and can be completed as soon as work on the hull is far enough advanced.

The machinery of the *Concord*, *Petrel*, and *Baltimore* has been given a thorough overhaul after about six years of continuous service, and similar work is in progress on the *Charleston* and *Newark*. Others of the early ships of the new Navy will soon have to go through the same process. For some time all the vessels of the new Navy were new and the repairs were light, but as time has passed the number of ships has steadily increased, and at the same time the extent of repairs, with accompanying increase of expense. Consequently it cannot be expected that the appropriation which sufficed when all the vessels were new and needed few repairs will be adequate now. It is also to be considered that when a ship is laid up for a general overhaul it is really more economical to make this thorough, so that she will be efficient for five or six years, than to postpone some items which might last a year or two longer and then necessitate her laying up for another long period, when the expense would be greater and her services lost to the fleet. In the long run, this makes the aggregate appropriations less, although for the next few years it may slightly increase them above what would suffice for an "opportunist" policy.

Attention was called last year to the necessary increase of expense for preservation and maintenance of machinery of ships in commission, which is at a more rapid rate, as compared with ten or fifteen years ago, than the mere increase of numbers of ships. Old ships with small engines are being replaced by new ones with many-fold greater engine power. Moreover, the old ships went under sail part of the time, while the new ones never move except by machinery. Such a ship as the *Brooklyn* has about five times the displacement of the *Marion*, but her machinery is multiplied at least fifteen times. The bills for repairs show that the expense is also increased on account of the inadequate number of officers and the difficulty of securing enough skilled mechanics, those ships where the complement of engineers is insufficient having the largest expense account. Last year it was necessary to secure a deficiency appropriation of $200,000, and the Bureau has, therefore, in the estimates for the next fiscal year, asked for an increase of $275,000 over the appropriation of the current fiscal year, which will be absolutely necessary to avoid a deficiency later on. So far as the machinery is concerned, the whole fleet has been kept in a state of efficiency equal to a war footing.

As appropriations have been secured, the Bureau has endeavored to modernize the plant at the more important yards so that repairs can be conducted expeditiously and cheaply. This is of the greatest importance to the efficiency of the fleet. The improvement in machine tools in the last twenty years has been so great that private builders who are at all enterprising throw away old tools, although in good condition, to give room for the latest and best. One large firm, with what was considered one of the best plants in the country, recently broke up good tools valued at $40,000 because they were becoming antiquated, and expended $200,000 for new ones of the latest pattern to replace them. We need not go as far as this, but true economy dictates that we should keep our plant up to date.

Under the various yards and stations will be found statements relative to estimates for improving old or installing new plant. These are based, in part, on the idea that a consistent policy is to be followed and that, when a large sum has been spent in building a dry dock, it must be the intention, as soon as possible, to have the proper plant established there for the repairs which may have to be made when vessels are in dock. It would be not only uneconomical but absurd to be compelled to keep a ship in dock while repairs are being made at places 500 or 1,000 miles away.

NAVY-YARD, BOSTON, MASS.

Small repairs have been made to the machinery of the *Iwana*, *Passaic*, and *Wabash*, amounting to $499.17; and since the beginning of the present fiscal year some of the vessels of the North Atlantic Squadron have been ordered to this yard for overhauling.

The expenditures, other than for naval vessels, were as follows:

Office expenses	$307.04
Care and handling of stores	14.00
Superintendence, care and repair of shop machinery and tools	6,978.04
Running, firing, and repairing yard engines and boilers	460.88
Care and repair of yard steam launches	281.34
Labor and material for other departments	1,972.24
Holidays	228.48
Miscellaneous	96.56
Total	10,338.58

An estimate is made this year for $15,000 for new and modern tools, supplementary to the present plant, to secure expedition in repair work. The advantages of this yard as a repair station have been repeatedly set forth by this Bureau. In the unlimited supply of skilled labor in the immediate vicinity, one of the chief items in determining the location of a machinery plant working irregularly, as our yards must, it has no superior.

NAVY-YARD, PORTSMOUTH, N. H.

The principal expenditure has been for steam-launch machinery for issue to new ships and repair of launch machinery of vessels in commission, aggregating $30,779.11.

Repairs have been made on the machinery of the *Leyden* and slight repairs and stores and outfits furnished the *Vicksburg* and *Newport.*

Aggregate expenditures in the steam engineering department of this yard were as follows:

Labor	$47,584.74
Material	12,202.24
Total	59,786.98

The expenditures, other than for naval vessels, were as follows:

Civil establishment	$1,800.00
Office expenses, copyists	992.13
Superintendence, care and repair of shop machinery and tools, and running, firing, and repairing yard engines and boilers	21,326.00
Care and repair of yard steam launches	789.60
Making evaporators and distillers for issue	29.52
Labor and material for other departments	169.56
Miscellaneous	1,056.94
Total	26,163.75

NAVAL STATION, NEWPORT, R. I.

Work in steam engineering department of this station has been the supplying of necessary stores and material, and repairing steam-cutter machinery and boilers, amounting to $4,567.97.

There is a small shop at this station which has been gradually supplied with tools suitable for small repairs by transfer from other yards.

NAVAL STATION, NEW LONDON, CONN.

The only work done at this station has been the care and repair of the yard steam launches, costing in all $1,480.48.

NAVY-YARD, NEW YORK, N. Y.

Work has been done upon new machinery and stores and outfits for the following vessels: *Annapolis*, *Atlanta*, *Brooklyn*, *Chicago*, *Helena*, *Iowa*, *Kearsarge*, *Porter*, and *Princeton.*

Repairs have been made to the machinery, or stores and outfits prepared for the following vessels: *Alarm*, *Alliance*, *Amphitrite*, *Bancroft*, *Castine*, *Cincinnati*, *Columbia*, *Cushing*, *Detroit*, *Dolphin*, *Ericsson*, *Essex*, *Fern*, *Indiana*, *Katahdin*, *Lancaster*, *Maine*, *Marblehead*, *Massachusetts*, *Miantonomoh*, *Montgomery*, *Narkeeta*, *Newark*, *New York*, *Nina*, *Puritan*, *Raleigh*, *San Francisco*, *Terror*, *Texas*, *Traffic*, *Vermont*, and *Vesuvius.*

The foregoing work includes new engines and boilers for the *Chicago*, completed in the shops and erection on board begun; new boilers completed for the *Dolphin*, and modification of engines and new boilers begun for the *Atlanta.* The machinery of the *Puritan* was fitted for commission after a general overhaul.

The aggregate expenditure in this yard in the steam engineering department was as follows:

Labor	$347,471.71
Material	118,702.30
Total	466,174.01

The expenditures other than for naval vessels were as follows:

Civil establishment	$2,999.97
Office expenses	2,437.32
Extra clerical force	10,713.53
Care and handling of stores	2,304.00
Superintendence, care, and repair of shop machinery and tools	41,508.00
Running, firing, and repairing yard engines and boilers	1,644.52
Improvement of plant, new tools, etc	3,355.17
Repairs and maintenance of floating derrick	4,063.31
Care and repair of yard steam launches	6,695.75
Making evaporators and distillers for issue	3,704.30
Labor and material for other departments	9,066.42
Experimental and test purposes	3,345.37
Making stores for issue	7,466.55
Breaking up old material	4,223.95
Shipments	835.74
Holidays	7,866.78
Total	112,230.68

This is the principal repair yard on the Atlantic Coast, and there is usually enough of this kind of work and new construction to give steady employment to a moderate force of skilled workmen, an important item in the efficient and economical performance of work. A new building for offices and for the experimental and test apparatus is badly needed. At present these are in the machine-shop building, which is totally unsuited to the purpose and where the room they occupy could be used to advantage for locating tools, which are now too much crowded. This matter has been referred to the Bureau charged with the erection of buildings with an urgent request for action.

NAVY-YARD, LEAGUE ISLAND, PA.

Work was done in the steam engineering department or stores and outfits prepared for the following vessels: *Alabama*, *Brooklyn*, *Iowa*, *Princeton*, *Massachusetts*, *Catskill*, *Canonicus*, *Lehigh*, *Mackenzie*, *Mahopac*, *Manhattan*, *Montauk*, *Miantonomoh*, *Vesuvius*, *Nahant*, *Katahdin*, and *Richmond*, amounting to $28,543.81.

The expenditures other than for naval vessels were as follows:

Civil establishment	$1,200.00
Office expenses, writers, etc	1,402.44
Superintendence, care, and repair of shop machinery and tools	7,665.99
Running, firing, and repairing yard engines and boilers	767.48
Improvement of plant, new tools, etc	2,056.07
Care and repair of yard steam launches	151.09
Labor and material for other departments	642.18
Holidays	600.72
Total	14,485.97

The plant at this yard has been improved as a result of the appropriation made in 1892, and is now in efficient condition for repair work, except in the boiler shop, where modern appliances are needed. As this yard has been selected for the reserve ships, it should be put in good condition for doing any work they may need.

The natural advantages of this yard for a great naval building and repair station are so marked as to have been the subject of comment and reports of special boards repeatedly. It can be defended more easily than any other yard on our Atlantic Coast, has a large water frontage, is in fresh water, is close to all naval material, and can draw on the largest population of skilled workmen in trades connected with ships in the country. If all the advantages were utilized, it would become our principal naval station.

NAVAL ACADEMY, ANNAPOLIS, MD.

The expenditures in the steam engineering department have been for small repairs to machinery of steam cutters and supplying the necessary materials and stores, amounting to $602.46.

NAVY-YARD, WASHINGTON, D. C.

Work was done for the steam engineering department of the *Dolphin*, *Cushing*, and *Triton*, amounting to $2,580.31.

The expenditures other than for naval vessels were as follows:

Office expenses	$20.20
Care and repair of shop machinery and tools	2,054.40
Care and repair of yard steam launches	27.00
Blue print apparatus at the Bureau	939.80
Holidays	135.44
Total	3,176.84

NAVY-YARD, NORFOLK, VA.

New machinery has been completed for the *Samoset* (tug No. 5), and the new machinery for the *Fortune* is as far advanced as practicable with reference to work on the hull. The machinery of the *Castine* has been thoroughly overhauled and that of the *Wilmington* prepared for commission.

Work has been done upon the steam machinery or stores and outfits prepared for the following vessels: *Amphitrite*, *Cushing*, *Castine*, *Columbia*, *Dolphin*, *Fortune*, *Franklin*, *Helena*, *Illinois*, *Indiana*, *Iwana*, *Kentucky*, *Maine*, *Monongahela*, *Nashville*, *Newark*, *Narkecta*, *Raleigh*, *Standish*, *Texas*, *Rodgers*, *Samoset*, *Wahneta*, and *Wilmington*.

The aggregate expenditure in the steam engineering department for the year was—

Labor	$120,075.52
Material	83,891.79
Total	203,967.31

The expenditures other than for naval vessels were as follows:

Civil establishment	$1,899.95
Office expenses, drafting, messengers, etc	5,060.50
Care and handling of stores	1,931.28
Preservation of stores and hand tools	1,388.35
Superintendence	6,823.53
Care and repair of shop machinery and tools	13,285.83
Material for use in shops and department	12,044.16
Running, firing, and repairing yard engines and boilers	228.29
Boilers and machinery for steam launches for issue	4,652.28
Improvement of plant, new tools, etc	240.52
Care and repair of yard steam launches	3,240.25
Labor and material for other departments	4,721.64
Experimental and test purposes	169.75
Breaking up old material	591.15
Shipments	13,378.64
Holidays	2,659.64
Miscellaneous	2,438.37
Total	74,754.13

The able and energetic chief engineer of this yard has made the steam engineering department as efficient as is possible with the present antiquated plant. If he were given the opportunity of equipping it with modern tools, work could be turned out more cheaply here than at any other of our yards. Norfolk is second only to New York in importance as a building and repair yard and should have a modern plant. An estimate of $25,000 is submitted this year for that purpose, although $50,000 could be wisely expended.

NAVAL STATION, PORT ROYAL, S. C.

Expenditures have been principally for stores, and amount to $385.39.

This station has one of the two dry docks on the Atlantic Coast capable of taking the battleships, and should, therefore, have a machinery plant capable of making the repairs needed when these vessels are in dock. A sum of $50,000 would be sufficient for this purpose.

NAVAL STATION, KEY WEST, FLA.

Cost of maintenance of steam engineering plant, $1,911.72.

The importance of this station for repairs to ships operating in the West Indies or Gulf is obvious. An appropriation has already been made for a building for machine shop, and an estimate of $30,000 is submitted herewith for the purchase and erection of a suitable plant. While the benefit which a repair station at this point would be to distressed merchant vessels can only enter incidentally in the considerations for its establishment, the following abstract from a former report will show the assistance which such vessels have derived from the meager outfit now there:

> In a wooden building, little better than a shed, at this station are a number of power tools and a small cupola. None of the tools are of large size and all of them are of old pattern, having been in their present location for many years. The shop is well cared for by one man, and the tools are always in condition for immediate use.
>
> This shop, small and incomplete as it is, has oftentimes proved of almost inestimable benefit to vessels of the merchant marine as well as the Navy; for Key West being in the very gateway to the Gulf, it has often happened that vessels bound to or from ports therein, and whose machinery required repairs beyond the facilities on board ship, have stopped and been enabled to make them with the aid of this Government shop, the only one in the place or the vicinity. This use of the shop costs the Government nothing, as the entire expense of running, when so used, is paid by the owner of the vessel; and the Government really benefits by having the power tools occasionally used, which is the surest way to keep them in good order.

NAVY-YARD, PENSACOLA, FLA.

No work has been done except care and preservation of machine-shop tools, yard materials, and care and repair of yard launches.

The expenditures were as follows:

Civil establishment	$1,000.00
Office expenses	34.51
Care and handling of stores	512.96
Superintendence, care, and repair of shop machinery and tools	2,365.23
Running, firing, and repairing yard engines and boilers	165.22
Care and repair of yard steam launches	241.99
Total	4,319.91

NAVAL STATION, PUGET SOUND, WASH.

Small repairs and preservation of the *Nipsic's* steam-cutter machinery, and supplying necessary material and stores amounting to $2,054.40, cover the work done at this station.

The remarks under Port Royal relative to the importance of a suitable repair plant apply even more strongly here, as the dry dock at this station is the only one on the Pacific Coast which can accommodate the battle ships. Mare Island is about 1,000 miles away, to which any parts needing repair would have to be sent while the ship remained in dock. Moreover, the draft of the battle ships is too great to permit them to go to Mare Island for any repairs, so that unless a plant is speedily erected on Puget Sound, we shall have to depend on outside establishments for the shop repairs needed by battle ships in the Pacific. An estimate of $50,000 for a suitable repair plant is herewith submitted, and it is respectfully urged that an appropriation be requested for the necessary buildings.

NAVY-YARD, MARE ISLAND, CAL.

Work has been done in the steam engineering department of the yard to the machinery of the following vessels, or stores and outfits prepared: *Adams*, *Alert*, *Baltimore*, *Bennington*, *Charleston*, *Concord*, *Hartford*, *Marietta*, *Mohican*, *Monadnock*, *Monterey*, *Oregon*, *Pensacola*, *Petrel*, *Philadelphia*, *Ranger*, *Thetis*, *Wheeling*, *Nellie*, *and Unadilla.*

The aggregate expenditures were—

Labor	$204,716.52
Material	69,401.20
Total	274,117.72

The expenditures other than for naval vessels were as follows:

Civil establishment	$3,000.00
Office expenses, writers, drafting, etc	7,554.94
Care and handling of stores	4,741.62
Superintendence, care, and repair of shop machinery and tools	33,839.78
Running, firing, and repairing yard engines and boilers	5,559.48
Improvement of plant, new tools, etc	2,369.77
Care and repair of yard steam launches	421.87
Labor and material for other departments	3,421.26
Making stores for issue	15,330.99
Steam launch engines and boilers for issue	13,771.19
Breaking up old material	193.72
Holidays	4,478.32
Total	94,682.94

Work has been commenced on the new machinery of the *Hartford*, but progress is slow on account of delay in receiving material.

The machinery of the *Concord* and *Petrel* has been thoroughly overhauled for recommission, and work to the same end on the *Baltimore* is about completed. Similar work on the *Charleston* is about one-third completed. The *Marietta* and *Wheeling* have been prepared for commission.

With the beginning of the present fiscal year (1897–98) an appropriation for new tools, long needed, became available, and the contract for them is about to be awarded. When these are installed, this yard will be well equipped for doing excellent work. As this is at present our only repair yard on the Pacific Coast, it should always be kept in a state of highest efficiency.

PRESENT CONDITION OF THE MACHINERY OF NAVAL VESSELS.

The following statement shows the condition of machinery, according to the latest reports, vessels being in commission unless otherwise noted:

Adams (wooden cruiser).—Engines and boilers in fair condition. Training ship.

Ajax (single-turret monitor).—Engines in fair condition. New boilers required for active service. Used by naval militia, New Jersey.

Alarm (torpedo ram).—In ordinary at Brooklyn Navy-Yard. Engines and boilers in fair condition.

Alert (third-rate iron cruiser).—Engines and boilers in good condition. In commission.

Alliance (wooden cruiser).—Engines and boilers in good condition. Training ship.

Amphitrite (double-turret monitor).—Machinery being overhauled at Norfolk Navy-Yard. Commissioned April 23, 1895.

Annapolis (composite gunboat).—Engines and boilers in good condition. First commissioned July 20, 1897.

Atlanta (second-rate steel cruiser.—Out of commission. New boilers authorized. Work in progress. First commissioned July 19, 1886.

Baltimore (second-rate steel cruiser).—Out of commission; overhauling. Engines and boilers in fair condition. First commissioned January 7, 1890.

Bancroft (steel gunboat).—Engines and boilers in good condition. First commissioned March 3, 1893.

Bennington (steel gunboat).—Engines and boilers in good condition. First commissioned June 20, 1891.

Boston (second-rate steel cruiser).—Engines and boilers in good condition. First commissioned May 2, 1887; recommissioned November 18, 1895.

Brooklyn (first-rate steel cruiser).—Engines and boilers in good condition. First commissioned December 1, 1896.

Camanche (single-turret monitor).—Engines and boilers in good condition. Used by naval militia, California.

Canonicus (single-turret monitor).—Engines in fair condition, but new boilers would be required for active service. In ordinary.

Castine (steel gunboat).—Engines and boilers in good condition. First commissioned October 22, 1894.

Catskill (single-turret monitor).—In ordinary. Engines in fair condition, but new boilers will be needed for active service.

Charleston (second-rate steel cruiser).—Out of commission. Machinery being overhauled. First commissioned December 26, 1889.

Chicago (second-rate steel cruiser).—Out of commission. New machinery being built at the navy-yard, New York. First commissioned April 17, 1889.

Cincinnati (second-rate steel cruiser).—Engines and boilers in good condition. First commissioned June 16, 1894.

Columbia (first-rate steel cruiser).—Engines and boilers in good condition. In reserve at League Island. First commissioned April 23, 1894.

Concord (steel gunboat).—Engines and boilers in good condition. First commissioned February 14, 1891; recommissioned May 22, 1897.

Cushing (torpedo boat).—Engines and boilers in good condition. First commissioned January 11, 1892.

Detroit (third-rate steel cruiser).—Engines and boilers in good condition. First commissioned July 20, 1893.

Dolphin (dispatch vessel).—Engines in good condition. Boilers nearly worn-out. First commissioned December 8, 1885; recommissioned March 14, 1892.

Enterprise (wooden cruiser).—Detailed as a school-ship for Massachusetts, and stationed at Boston.

Ericsson (torpedo boat).—Engines and boilers in good condition. First commismissioned February 18, 1897.

Essex (wooden cruiser).—Engines and boilers in fair condition. Training ship.

Fern (tender).—Engines and main boiler in good condition. Auxiliary boiler fair.

Foote (torpedo boat).—Engines and boilers in good condition. First commissioned August 7, 1897.

Fortune (tug).—Out of commission. Being fitted with new machinery, Norfolk Navy-Yard.

Franklin (wooden frigate).—Engines well cared for, but of obsolete type. Auxiliary boilers in good condition. Employed as receiving ship at Norfolk Navy-Yard. The machinery should be removed and used as old material.

Hartford (wooden cruiser).—In ordinary. New machinery building at Mare Island Navy-Yard.

Helena (light-draft gunboat).—Engines and boilers in good condition. First commissioned July 8, 1897.

Indiana (first-class battle ship).—Engines and boilers in good condition. First commissioned November 20, 1895.

Iowa (first-class battle ship).—Engines and boilers in good condition. First commissioned June 16, 1897.

Iroquois (wooden cruiser).—Machinery and boilers worn out and obsolete. Transferred to Marine-Hospital Service.

Iwana (tug).—Machinery and boilers in good condition. Yard tug at Boston.

Jason (single-turret monitor).—In ordinary. Engines in fair condition. Boilers in need of extensive repairs.

Katahdin (harbor-defense ram).—Out of commission. Repairs completed; engines and boilers in good condition. First commissioned February 20, 1896.

Lancaster (wooden cruiser).—Engines and boilers in fair condition, but of antiquated type.

Lehigh (single-turret monitor).—In ordinary. Engines and boilers in fair condition.

Leyden (tug).—Engines and boilers in good condition. Yard tug, Newport, R. I.

Machias (steel gunboat).—Engines and boilers in good condition. First commissioned July 20, 1893.

Mahopac (single-turret monitor).—In ordinary. Engines require general overhauling. Boilers unreliable.

Manhattan (single-turret monitor).—In ordinary. Engines in fair condition, but the boilers are poor and need to be replaced before going into service.

Maine (armored cruiser).—Engines and boilers in good condition. First commissioned September 17, 1895.

Marblehead (third-rate steel cruiser).—Engines and boilers in good condition. First commissioned April 2, 1894.

Marietta (composite gunboat).—Engines and boilers in good condition. First commissioned September 1, 1897.

Marion (wooden cruiser).—Engines in fair condition. Two boilers fit only for distilling purposes. In commission.

Massachusetts (first-class battle ship).—Engines and boilers in good condition. First commissioned June 10, 1896.

Miantonomoh (double-turret monitor).—In ordinary. Repairs completed. Machinery good and ready for steam.

Michigan (paddle steamer).—Engines and boilers in good condition. In service on the Great Lakes.

Minneapolis (first-rate steel cruiser).—Engines and boilers in good condition. In reserve at League Island. First commissioned December 13, 1894.

Minnesota (wooden frigate).—Used by Naval Militia, Massachusetts.

Mohican (wooden cruiser).—Out of commission. Being overhauled.

Monadnock (double-turret monitor).—Engines and boilers in good condition. First commissioned February 10, 1896.

Monocacy (iron, paddle-wheel).—Engines and boilers in fair condition. In commission.

Montauk (single-turret monitor.)—In ordinary. Engines and boilers in fair condition.

Monterey (coast-defense vessel).—Engines and boilers in good condition. First commissioned February 13, 1893.

Montgomery (third-rate steel cruiser).—Engines and boilers in good condition. First commissioned June 21, 1894.

Nahant (single-turret monitor).—In ordinary. Engines in fair condition. Boilers poor.

Nantucket (single-turret monitor).—Used by Naval Militia, North Carolina.

Narkeeta (tug).—Engines and boilers in good condition. Yard tug at New York Navy-Yard.

Nashville (light-draft gunboat).—Engines and boilers in good condition. First commissioned August 19, 1897.

Newark (second-rate steel cruiser).—Out of commission. Being overhauled, Norfolk Navy-Yard. First commissioned February 2, 1891.

New York (first-rate steel cruiser).—Engines and boilers in good condition. First commissioned August 1, 1893.

Nina (tug).—Machinery in good condition. Yard tug at New York Navy-Yard.

Nipsic (wooden cruiser).—Machinery worn-out and unfit for further service. Guard ship at Puget Sound Naval Station.

Olympia (first-class protected cruiser).—Engines and boilers in good condition. First commissioned February 5, 1895.

Omaha (wooden cruiser).—Engines obsolete; boilers worn-out. Transferred to the Marine-Hospital Service.

Oregon (first-class battle ship).—Engines and boilers in good condition. First commissioned July 15, 1896.

Passaic (single-turret monitor).—Used by Naval Militia, Georgia.

Pensacola (wooden frigate).—Old machinery removed. Two cylindrical boilers, and a distilling and pumping plant installed. Recruiting ship at San Francisco.

Petrel (steel gunboat).—Engines and boilers in good condition. First commissioned December 10, 1889; recommissioned December 16, 1896.

Philadelphia (second-rate steel cruiser).—Engines and boilers in good condition. First commissioned July 28, 1890.

Pinta (armed tug).—Engines of obsolete type. Boilers worthless. Out of commission.

Porter (torpedo boat).—Engines and boilers in good condition. First commissioned February 20, 1897.

Puritan (double-turret monitor).—Engines and boilers in good condition. First commissioned December 10, 1896.

Raleigh (second-rate steel cruiser).—Engines and boilers in good condition. First commissioned April 17, 1894.

Ranger (third-rate iron cruiser).—Out of commission. Machinery removed, and being cared for in steam engineering shop at Mare Island Navy-Yard.

Richmond (wooden cruiser).—Engines and main boilers in fair condition; auxiliary boilers poor. Receiving ship at League Island, Pa.

Samoset (tug).—Engines and boilers in good condition. Yard tug at League Island Navy-Yard.

San Francisco (second-rate steel cruiser).—Engines and boilers in good condition. First commissioned November 15, 1890.

Standish (cadet practice ship).—Engine and boilers in good condition.

Terror (double-turret monitor).—Engines and boilers in good condition. Commissioned April 15, 1896.

Texas (second-class battle ship).—Engines and boilers in good condition. First commissioned August 15, 1895; recommissioned July 20, 1896.

Thetis (special-service vessel)—In ordinary. Engines and boilers in fair condition.

Traffic (tug).—Engines and boilers in good condition. Navy-yard, New York.

Triton (tug).—Engines and boilers in good condition. Yard tug at Washington.

Unadilla (tug).—Engines and boilers in good condition. Yard tug at Mare Island Navy-Yard.

Vesuvius (dynamite gun vessel).—Engines good, boilers fair. Commissioned January 12, 1897.

Wabash (wooden frigate).—Machinery obsolete, worn-out, and condemned. Receiving ship at Boston Navy-Yard.

Wahneta (tug).—Engines and boilers in good condition. Yard tug at Norfolk.

Wheeling (composite gunboat).—Engines and boilers in good condition. First commissioned August 10, 1897.

Wilmington (light-draft gunboat).—Engines and boilers in good condition. First commissioned May 13, 1897.

Wyandotte (single-turret monitor).—Used by Naval Militia, Connecticut.

Yantic (wooden gunboat).—Used by Naval Militia, Michigan.

Yorktown (steel gunboat).—Engines and boilers in good condition. First commissioned April 23, 1889

CONDITION OF MACHINERY, ON SEPTEMBER 1, OF VESSELS COMPLETED OR BUILDING DURING THE PRECEDING YEAR.

Battle ship No. 5 (*Kearsarge*).—Date of contract, January 2, 1896. Date to be completed, January 2, 1899. Contract price, $2,250,000. Contractors, Newport News Ship Building and Dry Dock Company. Machinery about half completed. Work of placing certain portions of it on board and the erection of the engines in the shops has commenced.

At the request of the contractors the following changes have been approved: Katzenstein's metallic packing to be used instead of Watson's; reverse shaft brackets to be of cast steel instead of cast iron; link blocks to be of cast instead of forged steel; valve-stem crossheads to be of cast instead of forged steel; design of by-pass between main injection and main drain changed; slide valves fitted on circulating pump engines; by-pass fitted on main throttle; diameter of main exhaust increased from 19 to 20½ inches; rings in back tube sheets of boilers to be omitted; slight change to be made in design of propellers; feed tanks and filter to be made of galvanized steel instead of iron; change in oil tanks and lubrication; change in design of engine-room gratings; condensers and feed tanks to be lagged with galvanized iron instead of black walnut.

The Bureau directed the following changes: Safety valves to be fitted on auxiliary condensers; bilge and sanitary pumps worked by eccentrics on main shafts to be fitted; change in method of supporting center bearing bars of furnaces; stuffing boxes to be fitted on all sea pipes where they pass through the inner skin; all valves under pressure to be globe valves instead of straightway; safety sluice gates to be fitted in main injection pipes.

The Department directed the use of electric instead of hydraulic power for turning the turrets.

Battle ship No. 6 (*Kentucky*).—Contract same as for battle ship No. 5. The condition of the machinery of this vessel is the same as that of the *Kearsarge*, and the same changes have been made.

Battle ship No. 7 (*Illinois*).—Date of contract, September 26, 1896. Date to be completed, September 26, 1899. Contract price, $2,595,000. Contractors, Newport

News Ship Building and Dry Dock Company. The machinery is about one-fifth completed.

The following changes were made at the request of the contractors: By-pass fitted between main injection and main drain suction for circulating pumps; slide valves fitted in circulating-pump engines; diameter of I. P. valve-chest linings increased from 18 to 20¾ inches; design of cylinder relief valves changed; method of riveting condenser shell changed; double butt straps to be used; cooling surface increased from 7,000 to 7,105 square feet; reverse shaft brackets L. P. engine to be made of cast steel instead of cast iron; lignum-vitæ in stern bracket bearing to be secured at the forward end instead of the after one; manganese bronze to be used instead of phosphor bronze for circulating pump; slight changes in design of boilers; Katzenstein's metallic packing to be used instead of Watson's; receiver pipes to be made of composition; link blocks to be made of cast instead of forged steel; pistons to be made of cast steel; slight changes in design of by-pass valve on condensers; diameter of balance pistons changed; brake on ash hoists to be omitted; change in design of engine-room grating; change in design of lubrication; feed tanks to be made of steel; lagging on condensers and feed tanks to be made of galvanized iron instead of black walnut.

The Bureau directed the following changes to be made: Safety valve to be fitted on auxiliary condenser; stuffing box to be fitted on bulkhead No. 75 where shafts pass through; bilge and sanitary pumps to be fitted, worked by eccentrics on the main shaft; hole in piston rods to extend from end to end; stuffing boxes to be fitted on all sea pipes where they pass through the inner bottom; safety sluice gates to be fitted on main injection pipes.

Battle ship No. 8 (*Alabama*).—Date of contract, September 24, 1896. Date to be completed, September 24, 1899. Contract price, $2,650,000. Contractors, The William Cramp & Sons Ship and Engine Building Company.

At the request of the contractor, the following changes have been approved: Circulating pump engine to be single instead of double; design of boilers changed from curved ends at the top to square; cast-steel inverted Y-frames for engines to be used on one side instead of forged steel; turning engine to have slide instead of piston valves; axial holes in piston rods to extend from end to end; slight changes in circulation of water in thrust bearings, valve stem main engines, piston rod and valve-stem stuffing boxes, reversing shaft bearings; evaporator and brine pumps to be a combined pump; bolts for securing pipes of sea valves to skin of vessel to be made of forged steel instead of rolled manganese bronze; evaporators to be fitted with safety valve on coil and shell; throttle valve to be a balanced single poppet valve; length of eccentric rods increased from 7 feet 10 inches to 8 feet 8¼ inches; steel to be used for bolts instead of manganese or Tobin bronze; threads on stay tubes made parallel instead of taper; St. John's grate bars to be used instead of fixed bars.

The Bureau directed the following changes: Safety sluices fitted in main injection pipes; all sea pipes to be fitted with stuffing boxes where they pass through the inner bottom; heating surface of evaporator changed from 150 to 200 square feet.

Battle ship No. 9 (*Wisconsin*).—Contract dated September 19, 1896. Date to be completed, September 19, 1899. Contract price, $2,674,950. Contractors, Union Iron Works, San Francisco, Cal. Machinery about one-fifth completed.

The following changes proposed by the contractors were approved: Distance between collars of thrust shaft increased to 4 inches and length of shaft increased from 52 feet 10 inches to 53 feet 10¼ inches.

Slight changes were made in the detail designs of the following: Cylinders, valve-chest linings, valve-chest covers, valve stems, valve-stem guides, piston rods, crossheads, connecting rods, Y-frames, bedplates, crosshead guides, eccentrics, eccentric rods, and reversing shafts; slight changes in valve-stem guides and lower valve-chest covers; slight changes in design of thrust bearing; material of eccentrics changed, one portion to be made of forged steel and the other of cast iron; diameter of air pumps increased; angle of cranks of circulating pumps changed from 90° to 180°; piston valve of reversing engine changed to oscillating valve; T-piece of receiver pipe to be made of composition instead of copper.

Gunboat No. 7 (*Nashville*).—Date of contract, January 22, 1894. Date to be completed, January 22, 1896. Contract price, $280,000. Contractors, Newport News Ship Building and Dry Dock Company. Vessel completed, preliminarily accepted on June 30, 1897, and now in commission.

Gunboat No. 8 (*Wilmington*).—Date of contract, January 20, 1894. Date to be completed, January 20, 1896. Contract price, $280,000. Contractors, Newport News Ship Building and Dry Dock Company. Vessel completed, preliminarily accepted May 17, 1897, and now in commission.

Gunboat No. 9 (*Helena*).—Date of contract, January 29, 1894. Date to be completed, January 29, 1896. Contract price, $280,000. Contractors, Newport News Ship Building and Dry Dock Company. Vessel completed, preliminarily accepted May 26, 1897, and now in commission.

Gunboat No. 10 (*Annapolis*).—Date of contract, November 20, 1895. Date to be completed, February 20, 1896. Contract price, $227,700. Contractors, The Crescent Shipyard, Elizabethport, N. J. Vessel completed, preliminarily accepted on May 18, 1897, and now in commission.

Gunboat No. 11 (*Vicksburg*).—Date of contract, November 15, 1895. Date to be completed, February 15, 1896. Contract price, $229,400. Contractors, Bath Iron Works, Bath, Me. Machinery complete except a few minor details. Vessel preliminarily accepted July 6, 1897; now at navy-yard, Portsmouth, N. H., being prepared for the first commission.

Gunboat No. 12 (*Newport*).—Date of contract, November 15, 1895. Date to be completed, February 15, 1896. Contract price, $229,400. Contractors, Bath Iron Works, Bath, Me. Machinery practically completed. Vessel now at navy-yard, Portsmouth, N. H. Preliminarily accepted on July 6, 1897, and at present being fitted out as a practice vessel for the United States Naval Academy.

Gunboat No. 13 (*Princeton*).—Date of contract, November 20, 1895. Date to be completed, February 20, 1896. Contract price, $230,000. Contractors, John H. Dialogue & Son, Camden, N. J. Hull launched June 3, 1897.

At the request of the contractors the following changes were approved: Steel facing strips of disconnecting clutch to be omitted; slight change in crosshead slipper, collars of thrust shaft, boiler saddles; manhole dogs to be of wrought iron instead of steel; diameter of main check valves increased from 1¾ to 2 inches; Katzenstein's metallic packing to be used instead of Watson's.

The Bureau directed the following changes: Stuffing boxes to be fitted in all sea pipes where they pass through the double bottom.

Gunboat No. 14 (*Wheeling*).—Date of contract, November 29, 1895. Date to be completed, February 29, 1896. Contract price, $219,000. Contractors, Union Iron Works, San Francisco, Cal. Vessel completed, preliminarily accepted August 6, 1897, and now in commission.

Gunboat No. 15 (*Marietta*).—Date of contract, November 26, 1895. Date to be completed, February 26, 1896. Contract price, $223,000. Contractors, Union Iron Works, San Francisco, Cal. Vessel completed, preliminarily accepted August 6, 1897, and now in commission.

Torpedo boat No. 3 (*Foote*).—Date of contract, May 3, 1895. Date to be completed, August 3, 1896. Contract price, $97,500. Contractors, Columbian Iron Works and Dry Dock Company, Baltimore, Md. Vessel completed, preliminarily accepted July 28, 1897, and now in commission.

Torpedo boat No. 4 (*Rodgers*).—Date of contract, May 3, 1895. Date to be completed, August 3, 1896. Contract price, $97,500. Contractors, Columbian Iron Works and Dry Dock Company, Baltimore, Md. Machinery complete and ready for official trial.

Torpedo boat No. 5 (*Winslow*).—Date of contract, May 3, 1895. Date to be completed, August 3, 1896. Contract price, $97,500. Contractors, Columbian Iron Works and Dry Dock Company, Baltimore, Md. Machinery nearly completed.

The following changes proposed by the contractors have been approved: Slight change in feed pumps, throttle valve, drain cocks, floor plates, water-service pipes, boiler check valves, and dry pipes.

Bureau directed the following changes: Bronze wire to be fitted in mechanical telegraphs; reducing valve and steam gauge to be fitted on air compressor.

Torpedo boat No. 6 (*Porter*).—In commission. Contractors, Herreshoff Manufacturing Company, Bristol, R. I.

Torpedo boat No. 7 (*Dupont*).—Officially tried, but not yet accepted. Contractors, Herreshoff Manufacturing Company, Bristol, R. I.

Torpedo boat No. 8 (*Rowan*).—Date of contract, October 19, 1895. Date to be completed, January 19, 1896. Contract price, $160,000. Contractors, Moran Bros. Company, Seattle, Wash. Hull not launched.

The following changes proposed by the contractors have been approved: Wood lining under bedplate; dynamo located in engine room; feed tanks under floor plates to be made of galvanized steel instead of copper; two blowers in fire room instead of three, total capacity to remain the same; floor plates to be made of ⅛-inch iron plates, bumped instead of corrugated; water-service pipes changed from copper to brass.

Torpedo boat No. 9 (*Dahlgren*).—Date of contract, October 6, 1896. Date to be completed, April 6, 1898. Contract price, $194,000. Contractors, Bath Iron Works, Bath, Me.

The work on the machinery has progressed very slowly.

At the request of the contractors the following changes have been approved: Boiler tubes changed from Nos. 10 and 12 B. W. G. to Nos. 11 and 13, respectively; slight changes due to increasing the length of the boat 4 feet; crucible steel to be used for forgings instead of nickel or open-hearth steel; bedplates and engine frames to be made of bronze instead of cast steel.

Torpedo boat No. 10 (*T. A. M. Craven*).—Date of contract, October 6, 1896. Date to be completed, April 6, 1898. Contract price, $194,000. Contractors, Bath Iron Works, Bath, Me. Same changes as torpedo boat No. 9.

Torpedo boat No. 11 (*Farragut*).—Date of contract, October 5, 1896. Date to be completed, April 5, 1898. Contract price, $227,500. Contractors, Union Iron Works, San Francisco, Cal.

At the request of the contractors the following changes have been approved: Length of fire rooms increased, in order to use larger boilers.

Torpedo boat No. 12 (*Davis*).—Date of contract, October 6, 1896. Date to be completed, October 6, 1897. Contract price, $81,546. Contractors, Wolf & Zwicker, Portland, Oreg.

The following changes proposed by the contractors have been approved: Length of forward fire room decreased; Thornycroft type of boiler to be used.

Slight changes made in the following details: Diameter of stern tube shaft, covering of shafts, H. P. valve-chest covers, condensers, engine columns, bedplates and crank-shaft brasses, valve gear, composition of white metal, shape of smoke pipes, furnace fronts, changes in connections to main drainage pipes.

Torpedo boat No. 13 (*Fox*).—Date of contract, October 6, 1896. Date to be completed, October 6, 1897. Contract price, $81,546. Contractors, Wolf & Zwicker, Portland, Oreg. Same as torpedo boat No. 12.

Torpedo boat No. 14 (*Morris*).—Date of contract, October 6, 1896. Date to be completed, October 6, 1897. Contract price, $85,000. Contractors, Herreshoff Manufacturing Company, Bristol, R. I. Work progressing very slowly.

The contractors' proposal to fit an auxiliary oil-burning plant in the boilers was approved by the Department.

Torpedo boat No. 15 (*Talbot*).—Date of contract, October 6, 1896. Date to be completed, October 6, 1897. Contract price, $39,000. Contractors, Herreshoff Manufacturing Company, Bristol, R. I. Work progressing very slowly.

Torpedo boat No. 16 (*Gwin*).—Date of contract, October 6, 1896. Date to be completed, October 6, 1897. Contract price, $39,000. Contractors, Herreshoff Manufacturing Company, Bristol, R. I. Same as torpedo boat No. 15.

Torpedo boat No. 17 (*Mackenzie*).—Date of contract, October 7, 1896. Date to be completed, October 7, 1897. Contract price, $48,500. Contractors, The Charles Hillman Company, Philadelphia, Pa.

The following changes proposed by the contractors have been approved: Width of fire room increased 8 inches; pistons to be made of cast steel, steam drums to be lap-welded instead of double-butt strapped; location of spring bearing for line shaft moved one-half frame space.

Torpedo boat No. 18 (*McKee*).—Date of contract, October 7, 1896. Date to be completed, October 7, 1897. Contract price, $45,000. Contractors, Columbian Iron Works, Baltimore, Md.

The following changes proposed by the contractors have been approved: Use of Thornycroft boiler, Speedy type; magnolia metal to be used in the bearings; Katzenstein's metallic packing to be used; boiler tubes to be solid drawn steel, Nos. 11 and 13, B. W. G., instead of lap-welded iron, Nos. 10 and 12; location of water drums lowered 1½ inches; slight change in design of thrust bearing; auxiliary feed pump to be horizontal instead of vertical; cast steel to be used instead of partial steel.

Torpedo boat No. 19 (*Stringham*).—Date of contract, July 29, 1897. Date to be completed, January 29, 1899. Contract price, $236,000. Contractors, The Harlan & Hollingsworth Company.

Torpedo boat No. 20 (*Goldsborough*).—Date of contract, July 13, 1897. Date to be completed, January 13, 1899. Contract price, $214,500. Contractors, Wolf & Zwicker, Portland, Oreg.

Torpedo boat No. 21 (*Bailey*).—Date of contract, July 28, 1897. Date of completion, January 28, 1899. Contract price, $210,000. Contractors, Gas Engine and Power Company, and Chas. L. Seabury Company.

WATER-TUBE BOILERS.

The gradual replacement on war vessels of the familiar cylindrical boiler by various forms of the water-tube boiler constitutes the most important fact in marine engineering at this time. For torpedo boats their superiority was so evident that they quickly displaced the older type and have been used exclusively for some years, although their first appearance (on the *Ariete*) was only ten years ago. The particular form used in torpedo boats is, however, of such light scantling that hitherto there has been a fear that its longevity would not be sufficient to warrant the use of such boilers in large vessels. A different form has been in use in the French navy since 1879, and has also been used in other navies, in some very extensively, but the saving of weight due to its use has not been so great as seems desirable if the cylindrical boiler is to be definitely abandoned.

In 1888, this Bureau, alive to the supreme importance of light machinery for naval vessels, advised the Department to invite a competition of manufacturers of water-tube boilers with a view to the adoption of the successful one for use in a naval vessel. As a result of this action, coil boilers were installed in the *Monterey* in 1892, and have been in successful use ever since. This was the first instance of the use of light water-tube boilers for a large power (over 4,000 I. H. P.) on a large ship.

It would have been easy for the Bureau to gain a cheap reputation for progressiveness by adopting this type of boiler at once for all ships, but there had not been sufficient experience in the use of these boilers for extended cruising at sea to make such a step judicious and for the highest efficiency of the fleet. The *Monterey* was expressly designed for coast defense, so that she would always be near repair shops if necessary, and her case was different from that of ships designed for general cruising. The conditions of the building of our new Navy made it imperative that every unit should be absolutely reliable. We were not adding to a navy up to date, but were replacing obsolete ships with modern ones. With only three battle ships in commission, we could not experiment on the few additional ones authorized. Consequently, although realizing the advantages of a reduction of boiler weights, if obtained without sacrificing reliability, the Bureau has used cylindrical boilers in the recent battle ships.

Meanwhile experience of our own has been acquired from the service of the *Monterey*, the *Cushing*, and the *Ericsson*, and careful attention has been paid to what is doing in the merchant marine and in foreign naval services. The last report of the Bureau showed the adoption of Babcock & Wilcox boilers for the *Chicago* and for the *Annapolis* and the *Marietta*. Since then it has been decided, in the modernizing of the *Atlanta's* machinery, to use this same make of boiler for about two-thirds of her power. The *Nashville* has Yarrow boilers for about the same fraction of power. As is shown elsewhere in this report, the *Annapolis*, *Marietta*, and *Nashville* have passed their contract trials successfully and their water-tube boilers were entirely satisfactory.

The Bureau feels that, with the experience now gained, the efficiency of the fleet will be best served by using water-tube boilers on future ships. As yet it can certainly not be said that any one of the numerous varieties of water-tube boilers is absolutely the best. Some of the ablest engineers in the world who, to cultivated talent add vast practical experience, have identified their names with particular forms of this type of boiler, and it is probable that, as experience accumulates, a form of boiler will be evolved embracing the best features of all of them. With respect to the form used on our recent ships—the Babcock & Wilcox—it may be said that it is a marine form of their well-known land boiler, which is used extensively all over the world, and which has all essential features in common with a number of other well-known land boilers, so that the fire-room force of our ships is more likely to have some acquaintance with this boiler than others of the type. The straight tubes can be readily removed and replaced, and can be purchased wherever engineering materials are kept in stock. As has been stated, the Ward boilers of the *Monterey* have been in successful use for about five years. They were recently retubed in place by the force on board, thus demonstrating practically one of the advantages of boilers of this type. However, the Bureau does not advocate any one form of boiler to the exclusion of the rest, but believes that the best results will come from giving contractors freedom of choice of a form of water-tube boiler, subject to certain conditions of scantlings, general design, and workmanship which the Bureau is prepared to lay down.

LIQUID FUEL.

The advantages to be derived from the use of liquid fuel instead of coal for certain classes of ships are so great that nearly every naval power has devoted considerable attention to the subject, and has conducted experiments with a view to determining the best apparatus and the necessary conditions. Our country being the greatest producer of petroleum, it is only natural that the subject should have received attention from this Bureau, and from 1867 to the present time the Bureau has, at intervals, conducted experiments with various forms of apparatus and various kinds of fuel oil, the last having been noted in its report of last year. An experiment on a larger scale has also been authorized by the Department, which, on the recommendation of this Bureau, has made a contract for one of the new torpedo boats to be fitted for burning fuel oil. An exactly similar boat, building by the same contractors, will burn coal, so that an excellent opportunity will offer for a comparison of the two fuels.

That fuel oil has not hitherto been used for naval purposes is due to the items of cost and difficulty of purchase, except in a few localities. On the Caspian Sea, where petroleum refuse is plentiful and cheap, it has been in successful use for more than fifteen years. Experiments made about ten years ago by the Pennsylvania Railway Company, under the direction of Mr. Theo. N. Ely, chief of motive power, showed the entire practicability of burning "reduced oil," but the question of cost made its use, except in special cases, impracticable, as well as the fact that this railway, if using oil fuel to the exclusion of coal, would at that time have consumed more than one-third of the entire output of petroleum in the United States. It is therefore quite evident that, as far as can now be seen, there is no prospect of the use of fuel oil in replacement of coal on vessels employed in general cruising. Inasmuch, however, as the traditional policy of our Navy has been a defensive one, it is probable that our torpedo fleet would operate on our own coast only, so that if we can afford the cost we might readily adopt oil fuel for this class of vessels if, in extended practice, it proves as successful as the experiments lead us to anticipate.

The petroleum refuse or "residuum" already referred to (which closely resembles the "reduced oil" of the Pennsylvania Railway experiments) has been tested so thoroughly that we are able to calculate the effect on radius of action of its use instead of coal. Its evaporative power is from 1.5 to 1.7 times as great as that of coal, and it can be "pulverized" or "atomized" with either compressed air or steam. The use of the latter is the simpler, but involves an extra supply of fresh water to replace that spent in the pulverizers. However, in good forms of apparatus this amount is less than 2 per cent of the steam vaporized. A simple calculation will show that in one of our first-class torpedo boats, if enough space be reserved for fresh water to supply the amount lost in pulverizing the residuum, there can still be carried an amount of the latter more than equal in evaporative effect to the total amount of coal now carried. Inasmuch, however, as an evaporator must in any case be supplied for ordinary losses, the simplest way to secure the needed fresh water would be by an increase of evaporator power, with, perhaps, a small reserve tank of fresh water for use at maximum power. If compressed air be used, the weight would probably be less, but the machinery would be more complicated.

The advantages of fuel oil are, greater evaporative power for same weight and bulk, ease of manipulation, perfect control of the combustion to suit the requirements of service, rapidity of starting fires, cleanliness, absence of refuse and the necessity for disposing of it, smaller personnel required in fire rooms, and (if it were in general use) ease and cleanliness in receiving and stowing on board. Against these advantages there are the disadvantages, if residuum is used, of cost (if adopted to a great extent), difficulty of purchase away from our own coasts, and (unless used to a great extent) some trouble in receiving on board. If other forms of fuel oil are used, some of these might be obviated, but the question of danger would arise. The balance of advantages is so great where the use of fuel oil is at all practicable that, in the Bureau's opinion, the Department is fully justified in authorizing the experiments already provided for and any others which will tend to the early practical use of this form of combustible on our torpedo boats and other small vessels.

BUILDING MACHINERY AND VESSELS IN CLASSES.

A matter which in some navies has received practical consideration has such an important bearing upon the efficient maintenance of the machinery that the Bureau deems it pertinent to bring it to the attention of the Department, viz, the building of vessels in classes. As a general question this is, of course, a matter of policy, but it affects the machinery more than any other part of the vessel, and in two ways. One is in the matter of spare parts. Although every ship must in any case carry a number of spares, a succession of mishaps may deprive her of all of a certain kind, while a sister ship may not have had occasion to use a single one; if they are in a squadron, a loan will avoid recourse to a repair shop. In other words, fewer spare parts need be carried, as a whole, and there is less likelihood of requiring the aid of shops on shore. Again, in every ship there is a complicated aggregation of valves and piping, much of it of necessity hidden from ready inspection, to gain a sufficient knowledge of which requires, even under favorable circumstances, considerable time. Almost every set of machinery has, too, what may be called "tricks," to be learned only after some acquaintance. Now it often happens that an exchange of nearly the whole personnel of the engineer's force has to be made on two ships which remain in active service. It is easy to see that if they are alike in every respect the exchange does not reduce efficiency, while if they are entirely unlike the efficiency of both is materially impaired until familiarity is gained.

It would seem, therefore, that the highest efficiency would be secured by building our ships, as far as possible, in classes, and making them alike in every particular. Then we could feel sure that men trained on one ship would be equally at home and just as efficient on the five or six others of the class, while we should have additional provision against disablement and dependence on outside aid for repairs.

LIGHTING MACHINERY COMPARTMENTS.

The importance of proper illumination of the machinery compartments is not fully realized, except by those whose duty requires them to be there constantly. Inspections by other officers are invariably made when the electric lights are burning brightly, the dynamos being started specially for the purpose in many cases. General Orders 471 and 473 undoubtedly contemplate that adequate light should be provided, but the whole matter is in the discretion of the commanding officers, and experience has shown that, with a view to pleasing the Department by economy, they usually shut down the dynamos in port, except for a few hours in the evening and in the morning watch, unless the lights are specially requested for important work. It does not seem to be realized that, in modern ships with a protective deck, and even the hatch openings filled with armor bars, there is no such thing as natural illumination; it must all be artificial. To give adequate light by means of oil lamps would involve an expense for oil alone much greater than the additional coal used for running the dynamos with engines of fair economy.

With respect to the lighting of the ship generally this Bureau is not concerned, but it has a vital interest in that of the machinery compartments, and is satisfied that it can only be done properly by electric lights, which should be in use all the time. In order that this may be secured without involving other parts of the ship, the Bureau recommends that it be granted authority to install, within the machinery space, an electric plant for the lighting of the engine and fire rooms, to be entirely under the charge of the chief engineer, and to be run continuously. The cost would not be great, as the plant would be small, and it would need no additional men to run it, as there are men of the engineer's force constantly on watch with the other auxiliary machinery.

When it was proposed more than eight years ago to carry out this plan on the *Maine*, it was at first approved, but afterwards disapproved on the ground that it was useless to have two electric plants, as the one provided would always be in use. This was the case for a time. As it is so no longer, the necessity for a special plant for the machinery compartments has again arisen. As it would contribute materially to the efficiency and safety of the machinery, as well as to the discipline of the department, the Bureau trusts that its recommendation will be approved by the Department.

MACHINERY OF SHIPS IN RESERVE.

When the Department inaugurated the policy of laying up certain ships in reserve, the Bureau submitted recommendations for the care and preservation of the machinery by the maintenance of skeleton crews, which would have the additional advantage of providing a number of men familiar with the machinery when the ships are needed for active service. As some of these vessels may be in reserve for a considerable period, the Bureau recommends, in addition to what has already been provided, that the machinery of each vessel be given a dock trial once every six months, using a part of the engines and boilers at a time, but with full steam pressure. The object of keeping the ships in reserve being to have them ready for use at short notice, there should be an occasional application of full pressure to test the joints and the general integrity of the machinery. In making these tests all the officers and men in the engineering department of all the reserve ships could be used on each one, so that no help would be needed from outside.

MACHINERY PLANT FOR REPAIR SHIPS.

In several of the large navies of the world provision has been made for the repair of ships and machinery when away from home, especially in time of war, by equipping special repair ships, which have an outfit of machine and other tools, capable of doing almost any work short of complete rebuilding. Some years ago the Department had a careful examination made of a number of large merchant vessels of fair speed with a view of their conversion into repair ships. Plans were prepared for four vessels showing the location of the power tools, and lists of hand tools and stores were made out, so that in a few weeks these ships could be completely equipped. These plans and lists are on hand and ready for use at any time. The cost of the power and other tools and stores for one of these ships would be about $50,000. It is worth considering whether it would not be advisable to purchase the power tools, which can be done for $25,000, and either store them away ready for immediate installation, or use them in one of the navy-yards with such disposition as would enable their prompt erection on board.

STEEL INSPECTION.

On March 1 the steel inspection board was dissolved and the inspection placed directly under the bureaus concerned. This has caused a decided increase of efficiency and expedition of business, as is shown by the appended statement of the officer in this Bureau specially charged with the details of this duty.

PERSONNEL.

In order to the highest efficiency of any organization two conditions are of first importance, adequate numbers for the duty to be performed, and a status of the members commensurate with the importance of the duty and proportionate to that given to others performing kindred work. Applying these criteria to the Engineer Corps of the Navy to-day, we find that neither is fulfilled, and in consequence the highest efficiency is not attained. In previous reports the Bureau has discussed these points at length, and the Department has given favorable opinions to the naval committees of Congress, who have been prepared to recommend favorable action, but in the press of business at the end of a Congress, action by the Houses was impossible.

As a result of many years of careful observation and study of the situation, my opinion is that two things are necessary to the highest efficiency of the Engineer Corps:

(1) An increase of numbers from 195 officers of all grades to about 300, so divided into the various grades as to give fair promotion.

(2) The conferring of actual rank and titles (with the name of corps attached), as is the case for the staff officers of the Army.

With regard to the first item, it is to be remarked that the amount of machinery to be cared for has enormously increased with the growth of our new Navy, while there has been no increase of numbers in the Engineer Corps. Prior to 1882, the strength of the corps was 270, but, in that year it was reduced to 170. At that time we had but a fragment of a Navy, with machinery of hardly more than auxiliary power. Before the reduction had reached the limit it was stopped by another act, leaving the legal number at 195. In 1882, the largest corps in the service had

736 members, and it was reduced about 100 numbers; but subsequent legislation has been such that the present legal number is 726, or practically no reduction. This comparison of numbers is made simply because these two corps are the ones which are charged with the detailed work of handling the ship and the maintenance of discipline, and to show that on this basis alone the numbers in the Engineer Corps should be materially increased. However, the number I recommend has been arrived at by a careful consideration of the actual needs of the service.

The economy in repairs to machinery, if this adequate and intelligent supervision were provided, would offset the increase in salaries, to say nothing of preventing the loss of the service of the ships when laid up at the yards for repairs. It is to be noted, also, that it is not, as some might think, more expensive to employ officers on certain kinds of duty on shore, for which their education specially fits them, than to employ civilians, while the efficiency with which the work is done is much greater. In many cases the officers actually get less pay than would be given civilians for the same work.

The importance of having enough officers to properly care for the machinery of our new ships is so great that it is almost a question in my mind whether it would not be wiser to stop building these expensive machines until we have a sufficient number of trained engineers to keep them efficient.

With regard to the second item, what is asked for costs nothing, does not in any way injure any other class of officers or reduce their importance, and would settle a grievance which saps the efficiency of the service, and has really driven some of the best men out of the Engineer Corps.

The effect of the absence of actual rank is shown by the difference in the provisions of the Navy Regulations for the exercise of authority by line officers and by those of the staff. The regulations say, "Officers of the line only can exercise military *command*," and "Officers of the staff shall, under the commanding officer, have all *necessary authority*," etc. With reference to divisional line officers they say, "the divisions under their *command*," while with reference to the chief engineer they say, "* * * shall *take charge* of the division," and, "all duty *under his supervision*." The regulations thus carefully make a distinction between *commanding* and *having charge* of men, and give the engineer officer a distinctly different and inferior kind of authority.

It would seem that in a military organization all orders should be military *commands*, and such is the case in our Army, where staff officers do exercise military command *in their own department only*, but, owing to the distinction which, as shown above, is so carefully made, the logical inference is that, if an engineer officer can not command his men, his directions to them are legally only requests. The absurdity of the existence of such a state of affairs should be manifest, for the engineers are expected and required to maintain discipline among a large part of the crew, amounting in the larger ships to between 25 and 40 per cent.

The anomalous position of staff officers is well recognized and understood by the men, whose respect for them and for their authority is proportionately lessened. Nor is this attitude confined to the men, for a case recently decided by the Department shows its existence among officers of high rank, and illustrates the importance of proper status for staff officers. In this case it was actually attempted to put commissioned staff officers under the command of an enlisted man. It would seem incredible, if it had not actually occurred, that any officer in authority would attempt to belittle and degrade other officers in this way. How can any set of officers command the respect of the men or exercise authority over them when such things are possible? It is in order that such things may be impossible, and that engineer officers may have the legal right to command their men, that the enactment for the Navy of the same law as for the Army is requested. This would read: "Staff officers for the Navy can not exercise command except in their own departments, but by virtue of their commissions may command all enlisted men."

ENLISTED MEN OF THE ENGINEER DEPARTMENT.

The reports from ships in commission call attention to several matters connected with the enlisted personnel which deserve attention. About two years ago, for purposes of uniformity in ratings, the bureau which looks after enlisted men divided the machinists into three classes, chief, first-class, and second-class machinists, the lowest class partly replacing oilers. This was intended also to secure an increased number of mechanics without a material increase of expense. The only objections to the scheme are that the pay of machinists, second class, ($40 per month), is too low to get good mechanics except in special cases, such as a desire to see the world, and these men have not the requisite training to do efficient duty as oilers. I am informed, also, that many of these men enlist with an understanding that they are sure of promotion to machinist, first class, in a few months; but, as the number of each grade on a ship is limited, this promotion is impossible. It would seem that the good features of the system might be retained if the rating of machinist, second class, were understood to be probationary for, say, one year, and their promotion to the next rating would follow if the record were good and a satisfactory examination were passed.

Much is said at times about encouraging the best machinists to remain in the service. The Bureau has dwelt on this subject in previous reports, and is still of the opinion that the best scheme is to have a longevity increase of pay of $5 per month for each reenlistment up to, say, $100 per month after twenty years' service, dependent on a good record for conduct and efficiency, and to separate them as far as possible from the enlisted men of lower ratings with respect to kind of punishment, shore leave, etc. It is very hard, if not impossible, for these men to exercise any control over men of lower ratings if they have no greater privileges and are treated in all respects substantially as firemen and coal passers.

A change should be made in the scheme for promoting enlisted men of the engineer's force. At present too much importance is attached to conduct and to serial promotion. On many ships a man, however competent, can not be promoted if he is a liberty breaker or returns from shore drunk. Now, I would be the last one to underrate conduct and sobriety, but facts are stubborn things, and it is a fact that some of the most intelligent and capable men we get do fall from grace when they go ashore. The regulations now require a man to have a continuous-service certificate before he can be rated higher than fireman, and this bars any man on a first cruise or an old hand who may have been a little late in reenlisting. It appears to me that the prime essential for every rating should be ability, and when a man has the ability and is the best man available for a rating he should get it. In consequence of the present system we have on many ships men rated as firemen doing the duty of oilers and water tenders, because they have the intelligence and skill and are the best men for the work, while the ratings which should have gone to them are filled by men of better conduct but decidedly less ability.

The highest ratings to which a man without a trade can attain are oiler and water tender, and at present he must go through the former to reach the latter. Both require special fitness and training but of a different kind, and a man might be an excellent water tender who would fail as an oiler. The regulations governing ratings should provide for filling both these positions from firemen.

In this connection attention is called (as has been done in previous reports) to the mistake of arranging the complements so that some of the mechanics are to do duty on full-power trials as water tenders. A man can only become a competent water tender by long experience as a fireman, and this experience the mechanics can never get, as their services are constantly needed for other work. The complement should provide enough regular water tenders to do all such duty at any time. On a recent full-power trial of one of our vessels in commission the report states that at least a quarter of a knot average speed was lost through the inexperience of one of the mechanics acting as water tender.

Whenever one of our ships is run at full power, the report of the trial is sure to include a remark about the lack of training of the men. This should not be a source of surprise, as we have absolutely no provision for giving preliminary instruction to the men of the engineer department. While there are a number of vessels for training apprentices in seamanship, there is not one for training firemen. Ordinary cruising does not furnish the opportunity, as forced draft is never used except for the full-power trials or in an emergency. No one can deny that upon the efficiency of the engineer's force will depend in large degree the success of an engagement, and hence it would seem that the training of this force is of at least the same importance as that of the apprentices. The training ship should be of moderate size, with high-speed engines, and her object should be to secure the highest proficiency of the men under maximum conditions. If the Department should approve this recommendation and be willing to set aside a vessel for this purpose, this Bureau, in conjunction with the Bureau of Navigation, could work out a scheme of instruction which would give us well-trained men when they go aboard cruising ships instead of the ignorant men whom we are now compelled to employ.

TRIALS OF NEW VESSELS.

A larger number of vessels than usual has been tried since the last report, but this is due to the fact that all but one are small. Special interest attaches to the use of water-tube boilers on three of the gunboats, and the reports show that in every case they gave entire satisfaction. It will be observed in comparing the sister ships *Marietta* and *Wheeling*, that on account of the reduced weight of water-tube boilers the former was able to use greater heating and grate surface, so that her boilers were run under practically natural draft. The performance of the *Wheeling* is however a remarkably good one, which may be attributed in a great measure to the Howden system of closed ash-pit forced draft with its attendant economy in the production of steam.

The machinery of the *Nashville* represents a design for securing economy at both high and low powers, an important feature for war vesssels, which do most of their cruising at considerably less than full power. The engines are quadruple expansion at full power, with arrangements for disconnecting the large low-pressure cylinders, so as to provide small triple-expansion engines at reduced powers. When worked as a quadruple-expansion engine, steam at 250 pounds pressure is supplied by Yarrow boilers to the H. P. cylinders, and by two cylindrical boilers to the first receiver at 150 to 160 pounds. The results on the trial trip were not so economical as they will undoubtedly be in regular cruising. Owing to the high rate of combustion in the Yarrow boilers the horsepower developed was considerably above that intended for maximum power over long periods. The trial, however, shows the excellence of the machinery and its reliability, when needed, to give the ship a high speed for her class.

These trials are also interesting from the fact that four of the vessels were tried by what is commonly called the "standardized screw" method, which was recommended some years ago by this Bureau, but not used to a great extent until recently, although in foreign countries it has been very commonly employed. It is by far the least expensive method of getting the speed accurately, and permits the trial to be conducted anywhere without the presence of a number of ships to secure tidal observations. Incidentally, it enables the collection of data of much value to the Department which would probably never otherwise be obtained.

1		Name of vessel	Iowa	
2		Date of trial	Apr. 7, 1897	
3		Duration of trial	4 hours	
4		Place of trial	New England coast	
5		Condition of sea and wind	Slight swell; light	
6		Length on water line, feet	360	
7		Beam, feet	72.23	
8		Draft, mean, on trial, feet	24.04	
9		Displacement, tons	11,363	
10		Immersed midship section, square feet	1,640	
11		Coefficient of fineness	.630	
12		Type of engines	Twin screw vertical triple expansion.	
13	Cylinder diameters in inches.	High pressure	39	
14		Int. pressure	55	
15		Low pressure	85	
16		Stroke of pistons, inches	48	
17		Number and type of boilers	3 D. E.; 2 S. E	
18		Length and diameter of boilers, feet	2 D. E., 19 by 16.75; 1 D. E., 21 by 16.75; 2 S. E., 9.94 by 16.75.	
19		Furnaces, number and diameter	32; 42″	
20		Grate surface used on trial, square feet	756	
21		Heating surface used on trial, square feet	24,082.2	
22		Condensing surface used on trial, square feet	16,124	
23	Screw propeller.	Diameter, feet	16.5	
24		Pitch, mean, feet	S., 19.97; P., 20	
25		Pitch, mean, adjustable between, feet	18 and 21	
26		Area, developed, both screws, feet	151.48	
27		Number of blades	3	
28	Steam pressure in pounds.	In boilers, per gauge	161.	
			Starboard.	Port.
29		At engines, per gauge	156.7	153.6
30		In first receiver, absolute	78.6	76.7
31		In second receiver, absolute	27.5	27.15
32		Vacuum in condenser in inches of mercury	24.1	
33		Revolutions of main engines, per minute	108.61	110.51
34	Mean pressures, in pounds per square inch.	High pressure	55.70	51.57
35		Int. pressure	34.53	33.46
36		Low pressure	14.07	14.26
37		Equivalent on low pressure	39.77	38.67
38	Indicated horse-power.	High pressure	1,716.98	1,617.3
39		Int. pressure	2,138.3	2,108.7
40		Low pressure	2,093.9	2,159.3
41		Aggregate each main engine	5,949.18	5,885.3
42		Aggregate both main engines	11,834.48	
43		Air-pump engines	8.36	8.34
44		Circulating-pump engines	9.73	7.22
45		Feed pumps	65	
46		Blowers	104.6	
47		Other auxiliaries	67.07	
48		Aggregate, mean, of all machinery	12.104.8	
49		Speed per hour, knots	17.0871	
50		Slip of propeller (mean), per cent	20.93	
51		Indicated thrust (main engines only), per square foot of developed area of propellers in pounds.	1,189.9	1,223.9
52		I. H. P. per square foot of grate, based on total I. H. P	16.01	
53		Heating surface per I. H. P., based on total I. H. P	1.97	
54		Condensing surface per I. H. P., based on I. H. P., lines 42, 43, 44, and 45.	1.35	
55	Coal	Kind and quality used	Pocahontas; hand picked	
56		Total burned per hour, pounds	Not measured	
57		Per hour, per square foot of grate, pounds		
58		Per hour, per I. H. P., pounds		
59		Air pressure in inches of water	.987	

LMINGTON		HELENA		ANNAPOLIS	1
r. 27, 1897		Mar. 29, 1897		Apr. 22, 1897	2
ours		3½ hours		3½ hours	3
g Island Sound		Long Island Sound		Long Island Sound	4
ooth; light to moderate		Smooth; light			5
250		250		168	6
39.6		39.6		36	7
8.65		8.63		11.43	8
1,342		1,340		951.25	9
327.5		327.1		355	10
.54		.54		.49	11
in screw vertical triple expansion.		Twin screw vertical triple expansion.		Single screw vertical triple expansion.	12
14.5		14.5		15	13
22		22		24.5	14
33.75		33.75		40	15
18		18		28	16
E		6 S. E		2 Babcock & Wilcox	17
3 by 7.78		9.78 by 7.78		11.58 by 9.42 width	18
6; 42″		6; 42″		2; 94 by 72	19
126		126		98	20
4,800		4,800		3,620	21
2,246		2,246		1,241	22
7		7		9.5	23
7.125		7.104		11	24
6.5 and 7.5		6.5 and 7.5		Solid.	25
37.4		37.4		30	26
3		3		4	27
185.13		180.92		224.7	28
tarboard.	Port.	Starboard.	Port.		
181.3	181.3	178.7	178.7	217.4	29
70.23	62.4	75.5	70.4	94.1	30
30	24.2	27.2	30.85	32.7	31
24.2		23.77		24	32
272.82	273.31	280.02	279.89	146.76	33
87.75	84	80.15	83.65	87.85	34
31.38	28.34	32.77	30.06	42.6	35
15.70	12.95	13.86	15.65	18.48	36
45.29	40.5	44.82	43.84	46.47	37
327.47	337.38	329.75	344.04	314.11	38
293.18	265.32	314.25	288.07	413.02	39
347.13	286.83	314.44	354.81	480.46	40
967.78	889.53	958.44	986.92	1,207.59	41
1,857.31		1,945.36			42
ttached to main engines.		Attached to main engines		1.86	43
4.2		7.8		5.9	44
6.65		5.79		7.21	45
9.4		8.4		4.64	46
16.81		20.83			47
1,894.37		1,988.18		1,227.2	48
15.0756		15.497		13.172	49
21.36		21.04		17.3	50
897.05	806.1	850.3	875.9	822.8	51
15.03		15.78		12.52	52
2.53		2.41		2.95	53
1.2		1.15		1.01	54
w River; best quality		New River; best quality		Pocahontas and Cardiff	55
t measured		Not measured		Not measured	56 57 58
1		1		.905	59

1	Name of vessel		NASHVILLE		NEWPORT[a]
2	Date of trial		May 14, 1897		May 27, 1897
3	Duration of trial		3½ hours		4 hours
4	Place of trial		Long Island Sound		Off Bath, Me
5	Condition of sea and wind		Smooth; light		Smooth; light
6	Length on water line, feet		221.42		168
7	Beam, feet		38		36
8	Draft, mean, on trial, feet		10.95		11.71
9	Displacement, tons		1,364		972
10	Immersed midship section, square feet		370		344
11	Coefficient of fineness		.518		.482
12	Type of engines		Twin screw vertical quadruple expansion.		Single screw vertical triple expansion.
13	Cylinder, diameters in inches.	High pressure	11		15.25
14		First int. pressure	17		23.5
15		Second int. pressure	24		
16		Low pressure	34		36
17	Stroke of pistons, inches		18		30
18	Number and type of boilers		4 Yarrow; 2 S. E		2 S. E
19	Length and diameter of boilers, feet		Y., 8.75 long; S. E., 9.91 by 7.55.		10.5 by 10.5
20	Furnaces, number, and diameter		Y., 4, 45″ wide; S. E., 2, 40″		4; 36″
21	Grate surface used on trial, square feet		142		78
22	Heating surface used on trial, square feet		5,350.02		2,524.04
23	Condensing surface used on trial, square feet.		2,476.6		1,118
24	Screw propeller.	Diameter, feet	6.67		10
25		Pitch, mean, feet	7		10.453
26		Pitch, mean, adjustable between, feet.	6.17 and 7.17		9.83 and 10.83
27		Area, developed, both screws, feet.	26.04		23.34
28		Number of blades	3		3
29	Steam pressure in pounds.	In boilers, per gauge	Yarrow, 252; cyl., 154		181.87
			Starboard.	Port.	
30		At engines, per gauge	249	249	177.5
31		In first receiver, absolute	146	144	76.07
32		In second receiver, absolute	72	73	34.95
33		In third receiver, absolute	28	28	
34	Vacuum in condensers, in inches of mercury.		25	25	25.5
35	Revolutions of main engines, per minute		308.53	308.3	142.68
36	Mean pressures, in pounds per square inch.	High pressure	71.95	77.18	83.89
37		First int. pressure	45.38	45.57	30.8
38		Second int. pressure	26.82	26.87	
39		Low pressure	17.5	17.47	16.83
40		Equivalent on low pressure.	49.74	50.33	45.04
41	Indicated horse-power.	High pressure	184.67	197.88	322.6
42		First int. pressure	275.23	288.64	258.38
43		Second int. pressure	337.59	338.13	
44		Low pressure	444.11	422.14	368.26
45		Aggregate each main engine	1,241.6	1,246.79	976.24
46		Aggregate both main engines	2,488.39		
47		Air-pump engines	Attached to engines.		Attached to engines.
48		Circulating pump engines	7.03	7.03	14.01
49		Feed pumps	21.74		7.67
50		Blowers	9.54		10.29
51		Other auxiliaries	2.12		.54
52		Aggregate, mean, of all machinery.	2,535.85		1,008.75
53	Speed per hour, in knots		16.299		12.29
54	Slip of propeller (mean), per cent		23.5		16.49
55	Indicated thrust (main engines only), per square foot of developed area of propeller in pounds.		1,457.07	1,464.28	686
56	I. H. P. per square foot of grate, based on total I. H. P.		17.86		12.93
57	Heating surface per I. H. P., based on total I. H. P.		2.11		2.51
58	Condensing surface per I. H. P., based on mean I. H. P., lines 46, 47, 48, and 49.		.98		1.12
59	Coal.	Kind and quality used	New River; hand picked		Pocahontas; good
60		Total burned per hour, pounds	7,593		2065.3
61		Per hour per square foot of grate, pounds.	53.47		26.48
62		Per hour per I. H. P., pounds	2.99		2.05
63	Air pressure in inches of water		1.26		.953

[a] Tried by "standardized screw method."

VICKSBURG[a]	MARIETTA[a]		WHEELING[a]		1
May 29, 1897	May 26, 1897		May 29, 1897		2
4 hours	4 hours		4 hours		3
Off Bath, Me	In San Francisco Bay		In San Francisco Bay		4
Smooth; light					5
168	174.06		174.06		6
36	34		34		7
11.65	11.96		12.03		8
964	991		1,000		9
342	349		352		10
.482	.508		.508		11
Single screw vertical triple expansion.	Twin screw vertical triple expansion.		Twin screw vertical triple expansion.		12
15.25	12		12		13
23.5	18		18		14
					15
36	28		28		16
30	18		18		17
2 S. E	2 Babcock & Wilcox		2 S. E		18
10.5 by 10.5	11.58 by 11.58 wide		10.5 by 10.5		19
4; 36″	2; 94″ wide.		4; 36″		20
78	94		[b] 60		21
2,524.04	3,664		2,508.44		22
1,118	1,104		1,104		23
10	6.75		6.75		24
10.627	7.25		7.25		25
9.83 and 10.83	Solid.		Solid.		26
23.34	34		34		27
3	3		3		28
185.71	173.6		182		29
	Starboard.	Port.	Starboard.	Port.	
179.9	171.69	171.5	156.5	157.2	30
89.95	69.30	70.5	71.2	71.1	31
39.33	27.56	25.39	24.7	24.4	32
					33
26.31	26.3	26.16	26.3	27.1	34
146.57	231.1	232.5	230.4	232.4	35
69.8	64.6	67.15	66.4	67.5	36
39.04	31.7	33.15	35.25	36.52	37
					38
19.4	14.55	14.25	14.05	13.75	39
48.57	39.635	41.372	42.01	43.47	40
276.09	150.25	157.16	153.96	157.89	41
371.9	167.74	176.47	185.94	194.27	42
					43
436.38	187.43	184.69	180.43	178.12	44
1,084.37	505.42	518.32	520.33	530.28	45
	1,023.74		1,050.61		46
Attached to engines.	Attached to engines.		Attached to engines.		47
19.48	3.16	3.16	3.16	3.16	48
6.85	6.08		6.08		49
7.03	4.6		4.6		50
.51	13.34		12.17		51
1,118.24	1,054.08		1,079.78		52
12.71	13.02		12.88		53
17.39	21.5		22.2		54
793	585.5	596.9	602.3	610.9	55
14.34	11.21		18		56
2.26	3.48		2.32		57
1.01	1.06		1.04		58
Pocahontas; good	Welsh, Harris, navigation; good		Welsh, Harris, navigation; good		59
2,375.	2,300		1,855.5		60
30.45	24.47		30.92		61
2.12	2.18		1.72		62
.967	.36		.78		63

---

[b] Hawden system of forced draft.

Torpedo-boat trials.

1	Name of vessel	PORTER		FOOTE.	
2	Date of trial	Feb. 10, 1897		June 25, 1897.	
3	Duration of trial	5 runs over a base of 11.972 N. M.		2 runs over base of 24.5 N. M.	
4	Place of trial	Narragansett Bay		Chesapeake Bay.	
5	Condition of sea and wind	Smooth; light breeze		Smooth; light airs.	
6	Length on water line, feet	175		160	
7	Beam, feet	17		16.06	
8	Draft, mean, on trial, feet	4.79		5.07	
9	Displacement, tons	164		143.9	
10	Immersed midship section, square feet	....		58.5	
11	Coefficient of fineness, prismatic	.403		.387	
12	Type of engines	Triple expansion, vertical.		Triple expansion, vertical.	
13	Cylinder diameters in inches. High pressure	16		12	
14	Cylinder diameters in inches. Int. pressure	22.5		19.25	
15	Cylinder diameters in inches. Low pressure	2 of 25		2 of 22	
16	Stroke of piston, inches	16		16	
17	Number and type of boilers	3—Herreshoff		2—Mosher.	
18	Length and diameter of boilers, feet	10′ 6″ long, 10′ 8″ wide, 11′ 0″ high.		10′ 4″ long, 9′ 5″ wide, 11′ 5″ high.	
19	Furnaces, number and diameter	3		2	
20	Grate surface used on trial, square feet	156		95.6	
21	Heating surface used on trial, square feet	8,010		5,280	
22	Condensing surface used on trial, square feet.	2,282.5		1,600	
23	Screw propeller. Diameter, feet	5′ 4″		5′ 2″	
24	Screw propeller. Pitch, mean, feet	8.75		8	
25	Screw propeller. Area, developed, both screws, feet.	21.38		14.76	
26	Screw propeller. Number of blades	3		3	
		Starboard.	Port.	Starboard.	Port.
27	Steam pressure in pounds. At engines, per gauge	196.2	196	238.8	241.7
28	Steam pressure in pounds. In first receiver, absolute	83.0	74.8	74.4	82.5
29	Steam pressure in pounds. In second receiver, absolute	16.8	14.4	13.6	12.6
30	Vacuum in condensers, in inches of mercury.	23.5	23.0	22.6	21.6
31	Revolutions of main engines, per minute	389.95	389.2	398.13	393.39
32	Speed per hour, in knots	28.63		24.53	
33	Slip of propeller (mean), per cent	14.87		21.48	
34	Air pressure in inches of water	2.2		3.78	

Estimates of appropriations required for the service of the fiscal year ending June 30, 1899, by the Bureau of Steam Engineering, Navy Department.

Detailed objects of expenditure and explanations.	Estimated amount which will be required for each detailed object of expenditure.	Total amount to be appropriated under each head of appropriation.	Amount appropriated for the current fiscal year, ending June 30, 1898.
SALARIES.			
Chief clerk (act Feb. 19, 1897)	$1,800		
One clerk of Class 3 (act Feb. 19, 1897)	1,600		
One clerk of Class 2 (act Feb. 19, 1897)	1,400		
One chief draftsman, restoring an office formerly held in this Bureau (submitted)	2,250		
One draftsman, Class 2 (act Feb. 19, 1897)	1,400		
One stenographer and typewriter, Class E	1,000		
One assistant draftsman, Class E (act Feb. 19, 1897)	1,000		
One stenographer and typewriter, Class D (act Feb. 19, 1897)	900		
One assistant messenger, Class B (act Feb. 19, 1897)	720		
Two laborers ($660 each), Class A (act Feb. 19, 1897)	1,320		
		$13,390	$11,140
STEAM MACHINERY.			
For completion, repairing, and preservation of machinery and boilers of naval vessels, including cost of new boilers, distilling, refrigerating, and auxiliary machinery, preservation of and small repairs to machinery and boilers in vessels—in ordinary, receiving, and training vessels—repair and care of machinery of yard tugs and launches (act Mar. 3, 1897)	600,000	....	425,000
For purchase, handling, and preservation of material and stores, purchase, fitting, repair, and preservation of machinery and tools in navy-yards and stations and running yard engines (act Mar. 3, 1897)	400,000	....	300,000

Estimates of appropriations required for the service of the fiscal year ending June 30, 1899, by the Bureau of Steam Engineering, Navy Department—Continued.

Detailed objects of expenditure and explanations.	Estimated amount which will be required for each detailed object of expenditure.	Total amount to be appropriated under each head of appropriation.	Amount appropriated for the current fiscal year, ending June 30, 1898.
STEAM MACHINERY—continued.			
For incidental expenses for naval vessels, yards, and the Bureau, such as foreign postage, telegrams, advertising, freight, photographing, stationery, books, and instruments (act Mar. 3, 1897)	$10,000		$10,000
		$1,010,000	735,000
CONTINGENT.			
For contingencies, drawing materials, and instruments for the drafting room (act Mar. 3, 1897)	1,000	....	1,000
IMPROVEMENT OF PLANT.			
Navy-yard, Boston, Mass.:			
Modern machine-shop tools (submitted)	15,000	15,000	
Navy-yard, Norfolk, Va.:			
Additional tools required to put the yard in condition for building and repairing modern marine machinery with economy and dispatch, including improvements in handling machinery and in the boiler-making plant	25,000		
New boilers for steam-engineering shops (submitted).	10,000		
		35,000	
Naval station, Key West, Fla.:			
For new tools for machine shop, foundry, and boiler shop (submitted)	30,000	30,000	
Naval station, Puget Sound, Wash.:			
For machine tools to fit out plant for repairs of engines, boilers, etc., of United States naval vessels (submitted)	50,000	50,000	
EXPERIMENTAL PURPOSES.			
Experiments with liquid fuel on steam tug at New York Navy-yard (submitted)	5,000		
Experiments with liquid fuel on 2 torpedo boats (submitted)	10,000		
		15,000	
CIVIL ESTABLISHMENT.			
Navy-yard, Portsmouth, N. H.:			
1 clerk to Department, per annum (act Mar. 3, 1897) $1,200			
1 messenger (same act) 600			
	1,800		
Navy-yard, Brooklyn, N. Y.:			
1 clerk to Department, per annum (act Mar. 3, 1897) $1,400			
1 writer (same act) 1,000			
1 messenger (same act) 600			
	3,000		
Navy-yard, League Island, Pa.:			
1 clerk to Department, per annum (act Mar. 3, 1897)	1,200		
Navy-yard, Norfolk, Va.:			
1 clerk to Department, per annum (act Mar. 3, 1897) $1,300			
1 messenger (same act) 600			
	1,900		
Navy-yard, Pensacola, Fla.:			
1 writer, per annum (act Mar. 3, 1897)	1,000		
Navy-yard, Mare Island, Cal.:			
1 clerk to Department, per annum (act Mar. 3, 1897) $1,400			
1 writer (same act) 1,000			
1 messenger (same act) 600			
	3,000	11,900	11,900

Very respectfully,

GEO. W. MELVILLE,
Engineer-in-Chief, U. S. N., Chief of Bureau.

The SECRETARY OF THE NAVY.

APPENDIX.

DEPARTMENT OF THE NAVY,
BUREAU OF STEAM ENGINEERING,
Washington, D. C., August 5, 1897.

SIR: I have the honor to make the following statement regarding the progress of the inspection of steel material under the cognizance of this Bureau since the dissolution of the steel inspection board on March 1, 1897:

Purpose.	Pieces.	Weight.
		Tons.
New vessels	6,300	1,142.7
Repairs	1,271	57.1
Total	7,571	1,199.8

The inspection of this material was made at 19 different points and 20 different steel manufactories, while inspectors are stationed at only 7 of the former. The inspectors are, however, so stationed with respect to the amount of work done at the various points that, with a given number of them, the least amount of travel is required.

The statement made in the above table is only an approximate indication of the volume of the steel inspection, as it does not include the material rejected, which is a large percentage of the total amount inspected. This percentage can be approximately ascertained from the records of this desk, but not without difficulty, as the rejections only appear on the test reports, and those reports do not give the weight of the objects tested. The weights of the rejected objects could be ascertained only from the shipping reports of similar objects, and would therefore be only approximate weights.

Specifications have been prepared for the inspection of steel for use in the construction of torpedo boats Nos. 19, 20, and 21; and those specifications are so much in advance of all previous ones that a reduction of at least 30 per cent in the weight of all the principal forgings of the engines of these vessels, except crank shafts, has been made possible.

The high requirements for certain forgings for battle ships Nos. 7, 8, and 9 serve to show what high qualities manufacturers are now able to obtain from carbon steel without the use of any special alloy. Engine columns for battle ship No. 7 have been made by the Midvale Steel Company, and like parts for battle ship No. 8 by the Bethlehem Iron Company under the same specifications, the former of high-carbon steel and the latter of nickel steel. These forgings were annealed in both cases, but not oil tempered. The specifications permitted the use of special steel, and it was supposed that that would be necessary to obtain the qualities required. The physical qualities of the high-carbon steel as shown by the prescribed tests were somewhat better than those of the nickel steel; but a cold-bend test which was much severer than the one specified determined the fact that the nickel steel was much tougher, though the tensile tests had shown greater elongation and reduction of area in the case of the other steel. These interesting extra cold-bend specimens were tested and sent to the Bureau by request. The high qualities of the high-carbon steel were obtained mainly by skilled treatment in the annealing furnace, and they show how much depends upon the heat treatment of metal. This fact is emphasized by the repetitions of this treatment which are frequently necessary to obtain the high qualities now required in steel forgings used in the Navy for certain purposes; also the high-grade steel boiler plates now used in the Navy are frequently made to pass second tests by heat treatment.

As further evidence of the capabilities of heat treatment in producing high-grade material, it may be added that one of the high-carbon engine columns above mentioned might have escaped rejection had the application of oil tempering been permissible. These columns were too large in section to safely subject them to this form of heat treatment, not having been designed with axial holes.

In this connection it may be added to the credit of the columns made of nickel steel that thus far reports show no rejections in their case, and that for this reason the nickel steel will doubtless prove in this instance cheaper than the high-carbon steel. To bore the high-carbon columns, in order to oil temper them, and so secure their acceptance or reduce rejections, would, of course, make the difference in the cost very much more in favor of the nickel steel.

The present system of conducting the inspection of steel has thus far proved very satisfactory, and has a very decided advantage over the former system in the point of time required to establish understandings between the manufacturers and the Bureau. There are many questions arising in the inspection of steel which can be decided or answered only by reference to the Bureau's plans and specifications, and which now come direct to the Bureau; whereas under the former system of inspection they came through the Steel Inspection Board, and the information desired in connection with them was, of course, returned to that Board for its decision, thus causing much delay.

The inspection of steel and the designing of machinery made of that material being now under one head, the plans and specifications for that machinery and the specifications for that steel can be better adapted to the full capabilities of the steel maker, and will not be apt to ask of him anything beyond his capabilities.

Very respectfully,

E. R. FREEMAN,
Chief Engineer, United States Navy.

CHIEF OF BUREAU OF STEAM ENGINEERING,
Navy Department.

REPORT

OF

THE PAYMASTER-GENERAL OF THE NAVY.

CHIEF OF THE BUREAU OF SUPPLIES AND ACCOUNTS.

NAVY DEPARTMENT,
BUREAU OF SUPPLIES AND ACCOUNTS,
Washington, D. C., October 1, 1897.

SIR: I have the honor to submit the report of the Paymaster-General of the Navy for the fiscal year ending June 30, 1897, with estimates of appropriations for the coming fiscal year and tabulated statements, as follows:

A.—General financial statement.
B.—Statement showing receipts and expenditures of provisions, clothing and small stores, and contingent, and balances on hand June 30, 1897.
C.—Statement of expenditures of money and material at shore stations and objects to which applied.
D.—Statement showing the cost of maintenance of navy-yards and stations.
E.—Statement showing the cost of maintaining ships in commission.
F.—Statement of payments through the Paymaster-General's Office on contract, open-purchase, and open-contract vouchers.
G.—Statement showing the value of supplies on hand July 1, 1896, the receipts from purchase and other sources and the expenditures during the year, and the balance on hand June 30, 1897.
H.—Statement of the value of stores received and expended on board ships in commission.
I.—Statement showing the value of real estate and chattels and machinery plant at the several navy-yards and stations June 30, 1897.
K.—Statement of public sales and reports of deposits on account of sales of Government property.
L.—Schedule of proposals received.

The concentration in this Bureau of all business pertaining to the purchase and custody of supplies and the maintenance of accounts covering the entire naval establishment, enables it to present in this report detailed exhibits under titles and subtitles of expenditures in all departments of the Navy on shore and on board every ship in commission.

There was drawn from the Treasury through the Bureau during the fiscal year 1897, $34,012,554.21, an increase of $7,810,398.84 over the amount drawn in the preceding year. The amount paid for the construction of new ships was $10,543,373.72, as compared with $6,974,435.04 in 1896—an increase in this item alone of $3,568,930.68.

The cost of supplies purchased in the United States was $6,306,049.48; of maintaining ships in commission, $8,938,549.71; of navy-yards and stations, $3,951,900.05.

There was expended in repairs to ships $1,773,203.37.

The expenditures on account of the Marine Corps were $836,713.58.

The total cost of maintaining the Navy during the fiscal year, exclusive of any increase to it and of permanent improvements at yards and stations specially appropriated for, was $17,514,231.13.

The cost to the Navy of the Light-House Establishment was $63,320.49; of the Coast and Geodetic Survey, $187,390.28; of the Fish Commission, $70,461.86.

The money and material expended in arming and equipping the Naval Militia, not including material loaned to States, was $16,538.89.

The deposits by seamen under the "Pay of the Navy deposit fund," drawing interest at 4 per cent per annum, amounted on June 30, 1897, to $295,600.91, an increase of about $50,000 over the preceding year. The deposits during the year were $194,850.81; the amount drawn out was $146,829.06; the interest paid was $8,656.70.

The money vouchers received, audited, and approved during the year were 26,203, aggregating $17,468,285.73, as compared with 20,368, aggregating $11,097,724.69, in the preceding year.

The supplies purchased exceeded in amount those purchased during the fiscal year 1896 by $2,665,628.87. Notwithstanding this large increase the balance sheets show that the value of stores on hand at the end of the year was only $91,873.57 in excess of the amount on hand at the end of the preceding year. The increase in the value of naval supply fund stores on hand at the end of the year, as compared with the quantity on hand at the end of the preceding year, was $163,800.18, deducting which amount from the total value of stores on hand shows an actual decrease in other supplies of $71,926.61. These figures show that great care has been exercised in the matter of purchases and that they have been made solely with reference to the actual necessities of the service.

The naval supply fund continues to grow in favor and utility. The purchases under it are made after public advertisement and under carefully drawn specifications, thus securing the widest possible competition and the highest grade of supplies. The records of the Bureau show a marked decrease in cost as compared with the numerous small purchases formerly made in the open market, as well as a great saving in the matter of requisitions, bills, etc.

During the first three years of its establishment the fund was $200,000, and the purchases of supplies under it were as follows: In 1894, $118,197.61; 1895, $218,523.81; 1896, $201,949.57; total for the three years, $538,670.99.

By act of Congress approved June 10, 1896, the fund was increased to $500,000, and during the fiscal year 1897 the contracts made under it amounted to $564,581.70. The reimbursements to the fund for the same period for stores issued amounted to about $300,000. On June 30, 1897, there was in the United States Treasury to the credit of the fund $200,454.67, with liabilities for contracts made amounting to $153,245.11, leaving but $47,209.51 uninvested. The adjustments allowed, awaiting transfer of appropriations by the Auditor, amounted to $41,349.67, the balance of the $500,000 constituting the fund being represented by stock on hand, stores in transit, and cash in Treasury, as stated above.

The last naval appropriation bill provided for a further increase in the fund of $1,000,000, which became available on July 1 of the present year, and the Bureau has taken steps to increase the stock at the various yards and stations, both in quantity and variety, always guarding carefully against an undue accumulation of material.

In my last annual report the attention of the Department was called to the urgent necessity for increasing the facilities of the Naval Clothing Factory at the New York Yard. While some improvements in the plant have been made during the past year, the space available is so inadequate that it is impossible under existing conditions to properly meet the demands of the service. The factory is located on the second floor of a building originally designed for the storage of provisions and clothing. The building afforded ample accommodation for such stores at the time of its construction, but the stock has increased with the growth of the Navy, while the space available has been reduced by the installation of the clothing factory. The result is an overcrowded condition in both establishments, which interferes with the prompt and economical transaction of business.

At the present time it is frequently necessary to store flour and other dry provisions in improper places, while the inspection of woolen and cotton fabrics is delayed by the want of proper facilities for the careful and expeditious examination of such material. Such delays embarrass the operations of the factory and make it impossible for contractors to obtain prompt payment for goods delivered. In any sudden emergency the facilities of the factory would be found wholly inadequate and great embarrassment would ensue. Owing to the constant improvement in quality and finish of the garments manufactured at the factory, but few are now made by the men aboard ship; so that during the past year the demands upon the factory have been greater than ever before. The limit of work has been reached, and no further extension can be made until larger and more convenient quarters are provided. I recommend the construction of a new building for the exclusive use of the factory and an extension of the present building for the storage of provisions, clothing, and small stores.

I also recommend the construction of an oil house for the storage of oil, turpentine, varnishes, and other inflammable materials. The stock of these articles that must necessarily be kept on hand to meet the demands of the service is a constant menace to millions of dollars' worth of other supplies and to the safety of the buildings in which they are stored. In view of the great value of Government property at the New York Yard, the importance of immediate action in this matter can not be overestimated. The efficiency of the yard would be still further increased by the construction of a new building for general stores. Such a building located near the water is needed for the reception and care of equipage belonging to ships undergoing extensive repairs or laid up in ordinary at the yard.

The act of June 30, 1890, provides that "all supplies purchased with moneys appropriated by this act shall be deemed to be purchased for the Navy and not for any bureau thereof, and these supplies, together with all supplies now on hand, shall be arranged, classified, consolidated, and catalogued, and issued for consumption or use, under such regulations as the Secretary may prescribe, without regard to the bureau for which they were purchased."

The act of March 2, 1891, further provides that "all supplies hereafter purchased with moneys appropriated for any branch of the naval establishment shall be purchased, classified, and issued for consumption or use subject to the provisions contained in the act making appropriations for the naval service, approved June thirtieth, eighteen hundred and ninety, in reference to supplies therein provided for and on hand."

Articles 1247, 1248, and 1270, United States Navy Regulations, read as follows:

1247. The custody, transfer, and issue of all supplies, and the records of all property and plants at navy-yards and stations belonging and appertaining to the Navy Department, with the exceptions hereinafter noted, shall be under the supervision of the Bureau of Supplies and Accounts.

1248. At navy-yards and stations there shall be an officer of the Pay Corps detailed as the general storekeeper, who shall, under the direction of the Paymaster-General have charge, with the exceptions noted, of the supplies, material, manufactured articles of ships' equipment, etc., at the respective yards and stations.

1270. (1) Orders for shipments shall be issued only by the Paymaster-General.

Notwithstanding the law and regulations quoted above it is still necessary in the payment of charges for transportation of supplies, advertising for and telegraphing in regard to them, to keep accounts under, and make payments from thirteen different appropriations under cognizance of the several bureaus. This method, unavoidable under existing conditions, involves a large amount of clerical labor and a multiplicity of papers that would be obviated were a single appropriation provided for this purpose.

A shipment of stores from one navy-yard to another or to a vessel may, and often does, embrace supplies for several departments, and, though they go at the same time and by the same line of transportation, it is necessary to prepare separate bills of lading in quadruplicate for each lot of stores, and vouchers in triplicate for the freight charges, under each appropriation concerned. In advertising for supplies, the expense has to be prorated among different appropriations, which involves the preparation of an unnecessary number of vouchers with the attendant amount of clerical labor. One set of bills of lading and one set of vouchers should suffice.

The same condition exists with reference to telegraph bills, vouchers being prepared under each bureau appropriation and office of the Navy Department, when one voucher covering the entire monthly account of the telegraph company for the whole Department would answer every purpose.

Were a single appropriation available for expenses of the character indicated the accounts of the Department would be greatly simplified and a mass of papers now necessary obviated, resulting in the saving of valuable time and an immense amount of clerical labor, not only at navy-yards and stations but in the Navy and Treasury Departments.

I recommend that the contingent appropriation of this Bureau be so broadened in scope and increased in amount as to cover all contingent expenses of this character common to the several bureaus, excepting only such as are properly chargeable to "Increase of the Navy" and "Pay, miscellaneous."

When officers attached to a seagoing ship are ordered to perform some additional duty, such as members of a court or board, involving temporary absence from a ship, it is the practice of the accounting officers of the Treasury, acting under several decisions of the Comptroller, to check such officers with the difference between sea and shore pay for the period during which they are thus employed. This action involves great hardship, as an officer's expenses are in no way decreased but rather increased by such additional duty, and his rate of pay should not be affected unless his orders explicitly state that he is detached from sea service. It is recommended that such legislation be asked for as will remedy this injustice.

It is also recommended that when officers are detached from duty upon the recommendation of medical boards of survey, by reason of physical disability incurred in the line of duty, they shall receive shore pay instead of leave pay while undergoing treatment in hospital or until expiration of sick leave.

Attention is invited to the act of May 25, 1896, authorizing the "Secretary of the Navy in his discretion to accept, in lieu of the written guaranty required to accompany a proposal for naval supplies and in lieu of the bond required for the faithful performance of a contract for furnishing such supplies, a certified check, payable to the order of the Secretary of the Navy, for the full amount of such proposal or contract." As the practice of the Department is to accept a bond for one-half or one-third of the amount involved in a proposal or contract, merchants and manufacturers prefer to suffer the inconvenience of filing a bond, which it was the object of the act to obviate, rather than to forward a certified check for the whole amount, which is virtually a deposit of cash with the Department and loss of the use of unnecessarily large amounts until the requirements of the proposal or contract are complied with. The result is that the law referred to is practically inoperative. I recommend that the law be so amended as to authorize the Department to accept in lieu of bond a certified check for such amount as in its discretion may be deemed necessary.

The attention of the Department was invited in a previous report to the act of Congress approved January 21, 1881, relative to advertising in the District of Columbia. Under this act whenever supplies for the Washington Navy-Yard, small or great in quantity, are advertised for, the advertisement must appear in six different newspapers in the District. I recommend that Congress be asked to exempt supplies for the Washington Navy-Yard from the requirements of this law.

In 1883 the number of pay officers was reduced from 126 to 96, the number now authorized by law. Since that date the duties of the corps have been greatly augmented, embracing as they do now the custody and issue of all supplies and material purchased for the naval service, excepting medical stores and those pertaining to the Marine Corps. The increase in the number of vessels and the renewed activity in all departments of the service have resulted in a necessity for an increased number of pay officers. There are but ten assistant paymasters allowed by law, and as the number of small vessels in commission is constantly increasing—nine new gunboats having recently been added to the list—the Department is greatly embarrassed in providing pay officers for such vessels. Under date of January 2 last the Bureau called the Department's attention to the necessity for an increase in the number of pay officers, and its letter was forwarded to the Naval Committees of Congress with a favorable indorsement. I earnestly recommend that an increase of twenty assistant paymasters be asked for by the Department.

Notwithstanding the great increase in the work of the Bureau in the past year it has, under the system now so fully established, been handled without any increase of force and with greater ease and satisfaction than ever before. Much has recently been accomplished in the way of simplifying methods and reducing papers. It is the aim of the Bureau to do away with everything that is not absolutely essential to completeness in accounts or vital to the general storehouse system.

Very respectfully,

EDWIN STEWART,
Paymaster-General, U. S. Navy.

Hon. JOHN D. LONG,
Secretary of the Navy.

Estimates of appropriations required for the service of the fiscal year ending June 30, 1899, by the Bureau of Supplies and Accounts, Navy Department.

Detailed objects of expenditure and explanations.		Estimated amount which will be required for each detailed object of expenditure.	Total amount to be appropriated under each head of appropriation.	Amount appropriated for the current fiscal year ending June 30, 1898.
SALARIES.				
Chief clerk (Rev. Stat., p. 27, sec. 167)		$1,800.00		
3 clerks, class 4 (Rev. Stat., p. 70, sec. 416)		5,400.00		
4 clerks, class 3 (act July 19, 1892; vol. 27, p. 243, sec. 1)		6,400.00		
3 clerks, class 2 (act Feb. 19, 1897)		4,200.00		
2 stenographers, at $1,400 each		2,800.00		
12 clerks, class 1		14,400.00		
4 clerks, class E, $1,000 each		4,000.00		
1 assistant messenger		720.00		
1 laborer		660.00		
1 laborer (submitted)		660.00		
			$41,040.00	$40,380.00
PROVISIONS, NAVY.				
For provisions and commuted rations for the seamen and marines, which commuted rations may be paid to caterers of messes, in cases of death or desertion, upon orders of the commanding officer; commuted rations for officers on sea duty and naval cadets and commuted rations stopped on account of sick in hospital and credited to the naval hospital fund; subsistence of officers and men unavoidably detained or absent from vessels to which attached under orders (during which subsistence rations to be stopped on board ship and no credit for commutation therefor to be given); fresh water for drinking and cooking purposes; labor in general storehouses and paymasters' offices in navy-yards, including expenses of handling stores purchased under the naval-supply fund, and a chemist at $2,000 per annum (Rev. Stat., p. 733, secs. 3709, 3747; act May 12, 1879, vol. 21, p. 3, sec. 1, and act Mar. 3, 1897)		1,405,000.00	1,405,000.00	1,405,000.00
CIVIL ESTABLISHMENT.				
Navy-yard, Portsmouth, N. H. (act Jan. 30, 1885, vol. 23, p. 295, sec. 3, and act Mar. 3, 1897):				
In general storehouses—				
2 bookkeepers, at $1,200	$2,400.00			
1 assistant bookkeeper	720.00			
1 bill clerk	1,000.00			
1 assistant clerk	720.00			
1 shipping and receiving clerk	1,000.00			
Total		5,840.00		
Navy-yard, Boston, Mass. (same acts):				
In general storehouses—				
1 bookkeeper	$1,017.25			
1 shipping clerk	1,000.00			
1 receiving clerk	1,000.00			
In yard pay office—				
1 writer	1,017.25			
Total		4,034.50		
Navy-yard, Brooklyn, N. Y. (same acts):				
1 writer to boards of inspection	$900.00			
In general storehouses—				
3 bookkeepers, at $1,200	3,600.00			
1 assistant bookkesper	1,000.00			
1 assistant bookkeeper	720.00			
3 receiving clerks, at $4 per diem	3,756.00			
1 assistant receiving clerk	1,099.00			
3 shipping clerks, at $1,000	3,000.00			
1 bill clerk	1,000.00			
1 assistant bill clerk	720.00			
2 leading men, at $2.50 per diem	1,565.00			
5 pressmen, at $2.76 per diem	4,319.40			
1 superintendent of coffee mills, at $3 per diem	939.00			
1 box maker, at $3 per diem	939.00			
1 engine tender, at $3.26 per diem	1,020.38			
1 coffee roaster, at $2.50 per diem	782.50			
1 fireman, at $2 per diem	626.00			
1 messenger, at $2.25 per diem	704.25			
1 writer	1,000.00			
1 store man	900.00			

Estimates of appropriations required for the service of the fiscal year ending June 30, 1899, by the Bureau of Supplies and Accounts, Navy Department—Continued.

Detailed objects of expenditure and explanations.		Estimated amount which will be required for each detailed object of expenditure.	Total amount to be appropriated under each head of appropriation.	Amount appropriated for the current fiscal year ending June 30, 1898.
CIVIL ESTABLISHMENT—continued.				
Navy-yard, Brooklyn, N. Y. (same acts)—Continued:				
In yard pay office—				
1 writer	$1,017.25			
1 messenger, at $2.25 per diem	704.25			
Total		$30,312.03		
Navy-yard, League Island, Pa. (same acts):				
In general storehouse—				
1 bookkeeper	$1,200.00			
1 assistant bookkeeper	720.00			
Total		1,920.00		
Navy-yard, Washington, D. C. (same acts):				
In general storehouse—				
1 bookkeeper	$1,200.00			
1 clerk	1,200.00			
1 receiving clerk	1,000.00			
1 bill clerk	1,000.00			
1 shipping clerk	1,000.00			
In yard pay office—				
1 writer	1,017.25			
Total		6,417.25		
Naval Academy, Annapolis, Md. (same acts):				
In general storehouse—				
1 bookkeeper	1,017.25			
1 receiving and shipping clerk	1,000.00			
Total		2,017.25		
Naval station, Newport, R. I. (same acts):				
In general storehouse—				
1 clerk	$1.200.00			
Navy-yard, Mare Island, Cal. (same acts):				
In general storehouses—				
2 bookkeepers, at $1,200	2,400.00			
2 assistant bookkeepers, at $720	1,440.00			
1 receiving clerk	1,000.00			
1 shipping clerk	1,000.00			
1 bill clerk	1,000.00			
1 clerk	1,000.00			
1 assistant clerk	1,000.00			
In yard pay office—				
1 writer	1,017.25			
Total		9,857.25		
Navy-yard, Norfolk, Va. (same acts):				
In general storehouses—				
2 bookkeepers, at $1,200	$2,400.00			
2 assistant bookkeepers, at $1,017.25	2,034.50			
1 bill clerk	1,000.00			
1 assistant bill clerk	720.00			
1 receiving clerk	942.00			
1 assistant receiving clerk	720.00			
In yard pay office—				
1 writer	1,017.25			
Total		8,833.75	$70,432.03	$70,432.03
CONTINGENT.				
For freight and express charges, candles, fuel, books and blanks, stationery, advertising, furniture for general storehouses and pay offices in navy yards, expenses of naval clothing factory and machinery for same, postage, telegrams, telephones, tolls, ferriages, yeoman's stores, iron safes, newspapers, ice, transportation of stores purchased under the naval supply fund, and other incidental expenses (act Mar. 3, 1897)		50,000.00	50,000.00	50,000.00

STATEMENT A.

GENERAL NAVAL ACCOUNT FOR THE FISCAL YEAR ENDING JUNE 30, 1897.

Appropriations.

DEBITS.

Balances July 1, 1896		$8,318,260.13
Appropriations for fiscal year 1897:		
Act of June 10, 1896	$30,124,935.95	
Urgent deficiency act of December 22, 1896	700,000.00	
Act of March 3, 1897	7,373,296.00	
		38,198,231.95
Naval supply fund, act of June 10, 1896		300,000.00
Indefinite appropriations and relief acts covered by warrant		102,606.70
Interest on Navy pension fund		420,000.00
Appropriation, "Naval Home, Philadelphia, Pa." by transfer from Navy pension fund		79,725.00
Covered in to the credit of the following funds:		
Clothing and small-stores fund	$398,207.46	
Naval hospital fund	93,926.35	
Pay of the Navy, deposit fund	190,792.81	
Ordnance material, proceeds of sales	30,403.83	
Pay, miscellaneous, 1896	3,284.35	
Pay, miscellaneous, 1897	11,906.48	
		728,521.28
Transfers between appropriations by Auditor's adjustments		1,376,105.61
Total		49,523,450.67

CREDITS.

Charged to account of appropriations:	
Navy Department requisitions	27,638,104.87
Auditor's adjustments	7,888,383.29
Navy pension fund	420,000.00
Charged to indefinite appropriations and relief acts:	
Navy Department requisitions	4,051.46
Auditor's adjustments	98,555.24
Surplus fund, 1897	166,607.02
Balances on hand June 30, 1897, to next account	13,307,748.79
Total	49,523,450.67

Balances June 30, 1897.

Annual appropriations:		
1897	$2,165,971.67	
1896	100,710.56	
1895	9,023.87	
1894	1,037.81	
		$2,276,743.91
Increase of the Navy:		
Construction and machinery	635,449.93	
Equipment	5,490.41	
Armor and armament	5,868,355.71	
Rapid-twist guns and reenforce cartridges	11,194.11	
Nickel	8,837.97	
Submarine torpedo boat	129,935.32	
Gun plant, navy-yard, Washington, D. C	6,058.40	
		6,665,321.85

Balances June 30, 1897—Continued.

Funds as follows:		
Pay of the Navy, deposit fund	$268,815.41	
Navy pension fund	420,000.00	
Naval hospital fund	232,482.20	
Clothing and small-stores fund	307,726.49	
Naval supply fund	200,454.62	
Payment of Japanese award	29,992.35	
Prize money	448,445.05	
Bounty, destruction of enemies' vessels (act of July 7, 1884)	53,966.21	
		$1,961,882.33
Miscellaneous appropriations:		
Mileage, Navy, Graham decision	492.43	
Certified claims	2,174.73	
Repairs to U. S. S. *Hartford*	43,461.49	
Repairs to U. S. S. *Constitution*	3,770.22	
Repairs to U. S. S. *Chicago*	23,142.30	
Steam machinery, "special"	370,367.95	
Payments on account of purchase of steamers *De Soto* and *Bienville*	24,606.28	
Naval coaling stations	250,000.00	
Naval station and coaling depot, Isthmus of Panama	200,000.00	
Naval station, Pago Pago	56,980.33	
Arming and equipping naval militia	81,265.99	
Model tank, navy-yard, Washington, D. C	85,893.64	
Machinery plant, navy-yard, League Island, Pa.	2,219.53	
Buildings and grounds, Naval Academy	2,028.36	
New Naval Observatory and buildings	9,194.90	
Transportation of naval supplies	13,010.29	
		1,168,608.44
Public works under Bureau of Yards and Docks		613,972.01
Sundry appropriations under Bureau of Ordnance		621,220.25
Total balances as above		13,307,748.79

Requisitions drawn by the Navy Department during the fiscal year ending June 30, 1897.

Charged to current appropriations	$27,638,104.87
Charged to indefinite appropriations	4,051.46
General account of advances	6,370,397.88
Total amount advanced	34,012,554.21

ANALYSIS OF ADVANCES.

To pay bills of exchange drawn on the Department	174,194.60
To the fiscal agents, London, England	1,700,000.00
To Pay-Officers of ships in commission	4,498,200.00
To disbursing officers to pay vouchers	17,589,856.37
To disbursing officers to pay labor rolls	5,583,761.57
To disbursing officers, "pay of the Navy," etc	3,618,143.61
To Pay-Officers of the Marine Corps	848,398.06
Total advances as above	34,012,554.21

Statement of receipts and payments for fiscal year ending June 30, 1897.

RECEIPTS.

Balance of account July 1, 1896		$9,128,524.75
Appropriations for fiscal year 1897 (see Appropriations)		38,198,231.95
Indefinite appropriations for fiscal year 1897		102,606.70
Interest on Navy pension fund (3 per cent on $14,000,000)		420,000.00
Cash from sales of supplies:		
Bureau of Yards and Docks	$228.67	
Bureau of Equipment	3,592.05	
Bureau of Ordnance	16,614.34	
Bureau of Construction and Repair	477.43	
Bureau of Steam Engineering	511.12	
Bureau of Supplies and Accounts	16,172.10	
Fuel to officers of Marine Corps	799.71	
		38,395.42
Cash from sales of condemned stores:		
At navy-yard, Boston, Mass	4,236.53	
At navy-yard, New York, N. Y	46,937.03	
At Naval Academy, Annapolis, Md	193.50	
At navy-yard, Washington, D. C	25,985.28	
At naval proving ground, Indian Head, Md	6,434.58	
At navy-yard, Norfolk, Va	2,800.00	
At naval station, Key West, Fla	1,825.00	
At naval station, Pensacola, Fla	16,500.00	
U. S. S. *Swatara*	6,900.00	
On board ships in commission	50.45	
		111,862.37
Undrawn pensions from pensioners at Naval Home		23,077.69
Collected from defaulting contractors		3,805.07
Refunded on account of Auditor's settlements		1,658.46
Refunded, miscellaneous		5,763.35
Premium on bills of exchange sold by Pay-Officers of ships		14,354.65
Premium on bills of exchange, remittances to fiscal agents, London, England		2,381.74
Cash received from rents:		
Wharf at navy-yard, New York, N. Y	$125.00	
Wharf at Naval Home, Philadelphia, Pa	300.00	
Wharf at Naval Hospital, Yokohama, Japan	128.70	
		553.70
Gain on appreciation of silver		508.82
Interest paid by fiscal agents, London, England		2,610.80
Damages to vessels (collected)		1,061.12
Cash from purchase of discharge by seamen		2,425.38
Cash from sales of deceased men's effects		754.18
Cash from sales of deserters' effects		2,367.91
Total		48,060,944.06

PAYMENTS.

Secretary of the Interior to pay Navy pension	340,275.00
Payments to the surplus fund, 1897	166,607.02
To the United States Treasury as miscellaneous receipts	39,316.55
Expenses of sales of condemned stores	2,306.62
For account of the Naval Establishment	33,959,125.70
Balance, June 30, 1897, to next account	13,553,313.17
Total	48,060,944.06

Analysis of payments for account of the Naval Establishment.

Approved money vouchers:	
Bureau of Yards and Docks	$982,175.61
Bureau of Equipment	838,759.77
Bureau of Navigation	185,603.90
Bureau of Ordnance	5,771,290.48
Bureau of Construction and Repair	728,593.57
Bureau of Steam Engineering	419,680.45

Analysis of payments for account of the Naval Establishment—Continued.

Approved money vouchers—Continued.		
Bureau of Supplies and Accounts	$984, 297. 85	
Bureau of Medicine and Surgery	233, 656. 94	
Secretary's office	7, 324, 227. 16	
		$17, 468, 285. 73
Labor rolls at navy-yards and naval stations:		
Bureau of Yards and Docks	605, 340. 25	
Bureau of Equipment	420, 535. 69	
Bureau of Navigation	174, 145. 92	
Bureau of Ordnance	980, 758. 73	
Bureau of Construction and Repair	2, 201, 454. 79	
Bureau of Steam Engineering	776, 492. 33	
Bureau of Supplies and Accounts	272, 144. 53	
Bureau of Medicine and Surgery	41, 946. 16	
Secretary's office	445. 54	
		5, 473, 263. 94
Pay rolls of navy-yards and naval stations:		
Pay of the Navy	2, 645, 098. 50	
Provisions (commuted rations)	32, 488. 50	
		2, 677, 587. 00
Payments by Navy pay agents (allotments, mileage, etc.)		1, 003, 338. 59
Payments on account of the Marine Corps:		
By the Quartermaster	281, 112. 62	
By the Paymaster	533, 600. 96	
By the Assistant Quartermaster	22, 000. 00	
		836, 713. 58
Public bills, ships in commission		841, 513. 53
Payments on rolls of ships in commission:		
Officers, crew, and marines, for pay	4, 632, 464. 41	
Officers, crew, and marines, for commuted rations	754, 901. 80	
Miscellaneous	51, 916. 88	
		5, 439, 283. 09
Direct payments:		
By the Navy Department	1, 996. 72	
By Auditor for the Navy Department	134, 456. 66	
By the fiscal agents, London, England	18, 950. 26	
By the naval attachés abroad	24, 793. 79	
		180, 197. 43
Miscellaneous payments		38, 942. 81
Total		33, 959, 125. 70

Statement of assets and liabilities.

ASSETS.

Appropriations, balance undrawn		$13, 307, 748. 79
Advances to Pay-Officers, in transit:		
Disbursing officers, to pay vouchers	$1, 009. 74	
Naval attachés abroad	1, 216. 63	
		2, 226. 37
Balances in hands, as follows:		
Disbursing officers, for vouchers	83, 394. 57	
Disbursing officers, "general account of advances"	95, 000. 00	
Disbursing officers, "pay of the Navy, etc."	90, 989. 51	
Pay-Officers of navy-yards and naval stations for labor rolls	154, 276. 99	
Pay-Officers of ships in commission	662, 359. 91	
Fiscal agents, London, England	98, 974. 92	
Paymaster of the Marine Corps	10, 645. 21	
Naval attachés abroad	2, 843. 06	
Advances to officers, etc	1, 503. 56	
		1, 199, 987. 73
Payments to seamen for deposits not adjusted by Auditor		19, 600. 50
Transfers between Pay-Officers in transit		22, 542. 45
Deposits in United States Treasury not adjusted by Auditor		69, 267. 22
Total		14, 621, 373. 06

LIABILITIES.

General account of advances	$682,387.31
Pay of the Navy, deposit fund	268,815.41
Bills of exchange not paid	58,871.37
Vouchers not reported paid	11,599.80
Deposits by seamen on interest, not adjusted by Auditor	46,386.00
Balance as per account, receipts, and payments	13,553,313.17
Total	14,621,373.06

Statement of receipts and expenditures for fiscal year ending June 30, 1897.

DEBITS.

Balance due June 30, 1896, and included in payments for 1897:		
Rolls of ships in commission	$772,765.31	
Rolls of navy-yards and stations	25,351.24	
		$798,116.55
Overpayments June 30, 1897, to be accounted for 1898:		
Rolls of ships in commission	19,452.07	
Rolls of navy-yards and stations	94.17	
		19,546.24
Due and unpaid, transferred accounts, in transit		9,215.16
Overpayments, transferred accounts, in transit		1,896.50
Overpayments, deserters' accounts, transferred to Auditor		2,432.37
Allotments paid, not reported checked on rolls		1,379.00
Apprehension of deserters		1,341.64
Minor credits on rolls:		
Refunded by seamen	$2,004.58	
Sales of deceased men's effects	764.69	
Sales of deserters' effects	2,259.63	
		5,028.90
Expenditures for fiscal year 1897		34,569,571.50
Total		35.408,527.86

CREDITS.

Overpayments, July 1, 1897, brought forward:		
Rolls of ships in commission	$17,242.17	
Rolls of navy-yards and stations	253.88	
		17,496.05
Credited to funds:		
Clothing and small-stores fund	392,164.22	
Naval-hospital fund	53,449.85	
		445,614.07
Forfeited by seamen:		
Through courts-martial, "pay"	28,977.16	
Through desertion, "pay"	35,113.19	
Through unauthorized absence, "pay"	12,104.60	
Through unauthorized absence, "commuted rations"	1,312.80	
		77,507.75
Advances to officers		2,356.80
Clothing overdrawn by marines		2,703.82
Checked by order of Auditor for the Navy Department		4,966.07
Apprehension of deserters, checked on rolls		1,341.64
Purchase of discharge, checked on rolls		3,220.38
Deceased men's accounts transferred to Auditor		4,839.53
Due and unpaid on rolls, June 30, 1897, carried forward:		
Rolls of ships in commission	$868,208.85	
Rolls of navy-yards and stations	21,147.20	
		889,356.05
Balance, payments on account of the Naval Establishment		33,959,125.70
Total		35,408,527.86

Analysis of expenditures for the fiscal year ending June 30, 1897.

Approved money vouchers:		
Title A.—Cost and valuation of ships	$9,806,548.28	
Title D.—Repairs to ships	14,632.04	
Title E.—Real estate and chattels	679,430.42	
Title G.—General maintenance	381,946.04	
Title N.—Models and experiments	32,709.51	
Title W.—Deterioration and waste	22,901.13	
Title X.—Supplies in store	6,306,049.48	
		$17,244,216.90
Labor rolls at navy-yards and stations:		
Navy-yard, Portsmouth, N. H	206,854.49	
Navy-yard, Boston, Mass	262,843.63	
Naval station, Newport, R. I	122,071.49	
Naval station, New London, Conn	8,259.59	
Navy-yard, New York, N. Y	1,610,604.82	
Navy-yard, League Island, Pa	347,776.64	
Naval Academy, Annapolis, Md	161,116.82	
Naval Home, Philadelphia, Pa	21,505.18	
Navy-yard, Washington, D. C	924,669.35	
Naval proving ground, Indian Head, Md	37,094.14	
Navy-yard, Norfolk, Va	654,636.48	
Naval station, Port Royal, S. C	12,924.69	
Naval station, Key West, Fla	8,724.61	
Navy-yard, Pensacola, Fla	33,594.12	
Navy-yard, Mare Island, Cal	1,032,530.81	
Naval station, Puget Sound, Wash	28,057.08	
		5,473,263.94
Title G.—Maintenance of navy-yards and stations:		
Pay of officers on duty, etc.—		
Navy-yard, Portsmouth, N. H	47,514.54	
Navy-yard, Boston, Mass	65,615.72	
Naval station, Newport, R. I	64,105.88	
Naval station, New London, Conn	18,306.99	
Navy-yard, New York, N. Y	165,671.10	
Navy-yard, League Island, Pa	54,713.20	
Naval Home, Philadelphia, Pa	24,009.29	
Navy pay office, Baltimore, Md	7,327.67	
Naval Academy, Annapolis, Md	254,496.03	
Navy-yard, Washington, D. C	112,309.26	
Naval proving ground, Indian Head, Md	10,609.72	
Navy-yard, Norfolk, Va	82,515.72	
Naval station, Port Royal, S. C	22,860.46	
Naval station, Key West, Fla	6,325.94	
Naval station, Pensacola, Fla	16,024.57	
Navy-yard, Mare Island, Cal	86,168.58	
Naval station, Puget Sound, Wash	17,459.12	
Naval Observatory, Washington, D. C	24,561.10	
		1,080,594.89
Title G.—Naval hospital, Yokohama, Japan		14,894.26
Title G.—Coaling station, Honolulu, Hawaiian Islands		1,600.75
Title G.—Coaling station, Pichilinque, Mexico		177.75
Title C.—Cost of commission of ships:		
Pay of officers and seamen	4,989,231.42	
Pay of marines	255,789.74	
Commuted rations, officers and seamen	609,498.70	
Commuted rations, marines	49,658.70	
Miscellaneous expenses	125,412.85	
		6,029,591.41
Title D.—Repair of ships in commission, paid on ships' bills:		
Bureau of Construction and Repair	11,030.61	
Bureau of Steam Engineering	4,559.73	
		15,590.34
Supplies purchased by ships in commission, paid on ships' bills:		
Bureau of Equipment	414,152.30	
Bureau of Ordnance	4,782.30	
Bureau of Construction and Repair	45,986.69	
Bureau of Steam Engineering	54,208.37	
Bureau of Supplies and Accounts	179,991.94	
		699,121.60

Analysis of expenditures for the fiscal year ending June 30, 1897—Continued.

Title H.—Personnel unassigned:			
Pay of officers on the retired list		$1,000,275.64	
Pay of officers on leave and waiting orders		110,515.55	
Pay of recruits awaiting draft and discharge		195,273.33	
Commuted rations, recruits awaiting draft and discharge		67,935.00	
Pay and expenses of prisoners		10,632.43	
			$1,384,631.95
Title K.—Coast and Geodetic Survey:			
Pay of officers and seamen		157,226.30	
Commuted rations, officers and seamen		29,475.60	
Miscellaneous expenses		688.38	
			187,390.28
Title L.—Light-House Establishment, pay of officers			63,320.49
Title M.—Fish Commission:			
Pay of officers and seamen		59,448.86	
Commuted rations, officers and seamen		10,889.40	
Miscellaneous expenses		123.60	
			70,461.86
Title O.—Naval militia:			
Money vouchers		11,477.82	
Pay of seamen		4,929.43	
			16,407.25
Title V.—Advertising:			
Money vouchers		9,285.32	
Settled by Auditor for the Navy Department		816.78	
			10,102.10
Title V.—Freight:			
Money vouchers		57,033.47	
Settled by Auditor for the Navy Department		104,215.82	
			161,249.29
Title V.—Bureau expenses:			
Money vouchers		24,682.43	
Miscellaneous		2,101.38	
			26,783.81
Title V.—Transportation of men:			
Money vouchers		21,727.07	
Auditor's certificates, etc		7,962.88	
			29,689.95
Title V.—Miscellaneous expenses:			
Money vouchers		83,541.23	
Miscellaneous		11,498.34	
			95,039.57
Title V.—Mileage and travel of officers:			
Money vouchers—			
Mileage for 1895	$863.82		
Mileage for 1896	3,511.57		
Mileage for 1897	11,946.10		
		16,321.49	
Miscellaneous—			
Mileage for 1895	8,234.24		
Mileage for 1896	8,045.00		
Mileage for 1897	150,309.58		
		166,588.82	
			182,910.31
Title I.—Pay of officers traveling under orders			9,985.72
Title I.—Pay of officers, special duty:			
Navy Department, chiefs of bureaus and officers, on duty			162,652.00
Special duty—			
Hydrographic office and branches		28,096.49	
Nautical Almanac		9,435.61	
Naval dispensary and museum of hygiene		21,496.84	
Under instruction at War College		11,880.79	
Under instruction abroad		14,953.42	
Miscellaneous		29,981.33	
			115,844.48

Analysis of expenditures for the fiscal year ending June 30, 1897—Continued.

Title I.—Pay of officers, special duty—Continued.		
Special duty, boards, etc.—		
Inspection and survey	$30,643.12	
Examining and retiring	39,135.67	
Medical examining	13,676.44	
Permanent improvement, New York	3,500.00	
Specifications and standard samples	6,384.65	
		$93,339.88
Special duty, inspection—		
Inspectors of steel	24,827.31	
Inspectors of ordnance	11,495.97	
Inspectors of machinery	10,549.05	
Cramp & Sons, Philadelphia, Pa	18,349.02	
Bath Iron Works	6,600.00	
Union Iron Works	14,712.60	
Columbian Iron Works	7,090.41	
Continental Iron Works	2,800.00	
Newport News Shipbuilding Co	20,716.36	
John H. Dialogue & Sons	5,536.44	
Moran Bros. & Co	4,522.09	
Lewis Nixon & Co	4,835.07	
Wolf & Zwicker's Iron Works	3,284.39	
Herreshoff Manufacturing Co	2,894.25	
Miscellaneous	4,802.21	
		143,015.17
Special duty, miscellaneous—		
Medical attendance	8,853.16	
Marine rendezvous	6,449.87	
Superintendence, State, War, and Navy building	2,409.86	
		17,712.89
Special duty, detailed—		
Smithsonian Institution	4,000.00	
Instructors at colleges	1,660.27	
School-ship *St. Marys*	9,854.91	
School-ship *Saratoga*	10,384.74	
School-ship *Enterprise*	11,314.96	
Supervisor of New York Harbor	2,836.16	
		40,051.04
Payments for account of the Marine Corps:		
Title G.—Marine barracks—		
Portsmouth, N. H	35,955.85	
Boston, Mass	57,956.17	
Newport, R. I	32,431.14	
New York, N. Y	98,989.21	
League Island, Pa	61,841.59	
Naval Home, Philadelphia, Pa	7,674.60	
Naval Academy, Annapolis, Md	29,459.11	
Washington, D. C	148,265.74	
Norfolk, Va	44,905.67	
Port Royal, S. C	14,187.89	
Mare Island, Cal	74,643.70	
Puget Sound, Washington	5,823.87	
Sitka, Alaska	17,741.80	
Clothing factory, Philadelphia, Pa., material and labor	91,722.12	
Advertising	3,568.99	
Freight and transportation	10,487.42	
Miscellaneous expenses	3,967.61	
Mileage of officers	8,278.69	
Pay of officers and enlisted men, retired	70,167.29	
Pay of officers on special duty	13,948.11	
		832,016.57
Sundry naval expenses:		
Outfits for naval apprentices	30,683.42	
Honorable discharge gratuities to seamen	135,605.00	
Interest paid on deposits by seamen	8,656.70	

Analysis of expenditures for the fiscal year ending June 30, 1897—Continued.

Sundry naval expenses—Continued.		
Discount on bills of exchange sold by Pay-officers of ships	$4,896.87	
Discount on bills of exchange, remittances to fiscal agents, London, England	1,805.62	
Loss on account of depreciation of silver	10,880.32	
Admiralty charts	2,160.83	
Commission paid to fiscal agents, London	8,553.01	
Interest paid on overdrafts, fiscal agents, London	9.18	
Expenses dispatch agent, London	2,895.63	
Expenses dispatch agent, Panama	199.30	
Expenses, Board of Visitors, Naval Academy	866.92	
Expenses, students abroad	4,457.48	
Pay and expenses, naval attachés abroad	19,229.73	
Expenses of revenue cutters on Florida coast	6,950.56	
Reward for heroism	100.00	
Miscellaneous	5,447.44	
		$243,398.01
Miscellaneous payments and certified claims:		
Auditor's certificates—		
Pay of the Navy—		
1894	6,766.83	
1895	8,158.56	
1896	18,950.48	
1897	18,828.03	
Certified claims	15,367.86	
Pay of the Marine Corps	8,168.04	
Heirs of deceased officers and seamen	9,864.48	
Miscellaneous	1,218.86	
		87,323.14
Prize money	1,741.74	
Bounty, destruction of enemies' vessels	273.43	
Extra pay to officers and men who served in the war with Mexico	2,837.70	
Mileage, Navy, Graham decision	15,183.48	
Destruction of clothing and bedding for sanitary reasons	347.88	
Enlistment bounties to seamen	2,391.17	
Indemnity for lost property	2,130.53	
Relief of sufferers by wreck at Samoa	447.45	
Relief of Geo. H. Plant, act of February 8, 1897	5,216.85	
Relief of National New Haven Bank, act of May 15, 1896	3,519.15	
Relief of Sophia and Julia C. Sparks, act of June 9, 1896	670.58	
Miscellaneous credits on rolls	2,433.94	
		37,193.90
Total expenditures, 1897		34,569,571.50

STATEMENT B.

Statement of receipts and expenditures of provisions, fiscal year 1897.

RECEIPTS.

Balances July 1, 1896:		
On hand at navy-yards and stations	$89,891.38	
On board ships in commission	79,434.04	
Provisions in transit	2,918.36	
		$172,243.78
Receipts at navy-yards and stations:		
Purchases	170,731.48	
Gain on issues	10.81	
From coffee mill (roasted and ground coffee)	27,800.22	
Gain by revaluation by surveys	518.36	
		199,060.87

Statement of receipts and expenditures of provisions, fiscal year 1897—Continued.

Receipts on board ships:		
Purchases	$178, 130. 33	
Gain on issues	15, 111. 01	
Gain on average prices	. 66	
		$193, 242. 00
Total		564, 546. 65

EXPENDITURES.

Expended at navy-yards and stations:		
For use (expense account)	200. 30	
Water to navy-yard tugs (cooking and drinking)	278. 17	
Condemned by surveys to loss account	2, 920. 54	
Condemned by surveys to be sold at auction	3, 373. 76	
Loss in transit (Pacific mail steamer *Columbia*, July 14, 1896)	704. 54	
To coffee mill (green coffee)	27, 800. 22	
To departments of yards	18. 91	
		35, 296. 44
Expenditures on board ships:		
Issues to crew	325, 646. 19	
Issues to marines	42, 676. 32	
Water for cooking and drinking	3, 757. 69	
Issues to supernumeraries not entitled to pay	85. 87	
To departments of ships	178. 84	
Sales to messes for cash	10, 338. 34	
Condemned by survey to loss account	2, 618. 87	
Loss on issues	7, 879. 57	
		393, 181. 69
Balances July 1, 1897:		
On hand at navy-yards and stations	55, 681. 02	
On board ships in commission	74, 422. 67	
Provisions in transit	5, 964. 83	
		136, 068. 52
Total		64 , 546. 65

Provisions in transit June 30, 1897.

Fourth quarter, 1897:	
From H. E. Jewett, general storekeeper, navy-yard, Pensacola, Fla.—	
To Paymaster M. M. Ramsey, U. S. S. *Montgomery*	$1, 217. 93
From A. S. Kenny, general storekeeper, navy-yard, New York—	
To Paymaster E. B. Rogers, U. S. S. *Minneapolis*	3, 418. 40
To Paymaster W. W. Woodhull, U. S. S. *Vesuvius*	157. 19
To Paymaster George A. Lyon, U. S. S. *New York*	4. 14
To Paymaster George W. Simpson, U. S. S. *Terror*	21. 90
To Paymaster J. J. Cheatham, U. S. S. *Alliance*	4. 91
To Paymaster George A. Lyon, U. S. S. *Fern*	2. 47
To Paymaster T. S. Thompson, U. S. S. *Massachusetts*	35. 01
To Paymaster L. Hunt, U. S. S. *Dolphin*	1. 15
To Paymaster C. W. Littlefield, U. S. S. *Maine*	22. 34
To Paymaster I. G. Hobbs, U. S. S. *Brooklyn*	3. 92
To Paymaster C. S. Williams, U. S. S. *Detroit*	5. 92
To Paymaster H. E. Biscoe, U. S. S. *Essex*	1. 35
To Paymaster A. W. Bacon, general storekeeper navy-yard, Mare Island, Cal	1, 028. 28
To Paymaster H. E. Jewett, general storekeeper navy-yard, Pensacola, Fla	39. 92
Total	5, 964. 83

Statement of receipts and expenditures of contingent stores, fiscal year 1897.

RECEIPTS.

Balances July 1, 1896:		
On hand at navy-yards and stations	$11,175.43	
On board ships in commission	15,002.04	
Contingent stores in transit	1,085.10	
		$27,262.57
Receipts at navy-yards and stations:		
Purchases	22,623.69	
Gain on issues	108.13	
From other departments	29.75	
Gain by revaluations by surveys	83.11	
From naval supply fund	2,229.64	
		25,074.32
Receipts on board ships:		
Purchases	1,447.82	
Gain on issues	12.86	
From departments of ships	15.23	
From naval-supply fund	286.04	
		1,761.95
Total		54,098.84

EXPENDITURES.

Expenditures at navy-yards and stations:		
For use (expense account)	$18,648.63	
To other departments	838.39	
Condemned by surveys to loss account	243.63	
Condemned by surveys to be sold at auction	243.36	
Loss in transit	11.64	
		$19,985.65
Expended on board ships:		
To ships' use	6,199.71	
To departments of ships	315.23	
Sales for cash	3.34	
Condemned by surveys to loss account	83.46	
Loss on issues	2.96	
		6,604.70
Balance to July 1, 1897:		
On hand at navy-yards and stations	11,748.02	
On board ships in commission	15,574.47	
Contingent stores in transit	186.00	
		27,508.49
Total		54,098.84

Contingent stores in transit June 30, 1897.

Fourth quarter, 1897:	
From A. W. Bacon, general storekeeper, navy-yard, Mare Island, Cal.—	
To Paymaster B. P. Du Bois, U. S. F. C. S. *Albatross*	$18.71
To Paymaster W. W. Williams, general storekeeper, naval station, Puget Sound, Wash	7.08
From A. S. Kenny, general storekeeper, navy-yard, New York—	
To Paymaster W. W. Woodhull U. S. S. *Vesuvius*	9.36
To Paymaster C. M. Ray, U. S. S. *Lancaster*	93.60
From H. T. Wright, paymaster U. S. R. S. *Vermont*—	
To A. S. Kenney, general storekeeper, navy-yard, New York	57.25
Total	186.00

Clothing and small-stores account.

RECEIPTS.

Clothing and small-stores fund, July 1, 1896		$1,144,137.44
Receipts by warrant:		
No. 4, September, 1896	$88,035.79	
No. 6, January, 1897	100,886.10	
No. 8, April, 1897	119,874.10	
No. 10, June, 1897	89,411.47	
		398,207.46
Accounts receivable, subject to settlement by the Auditor for the Navy Department	407,698.24	
Due from proceeds of sales at public auction	5,538.91	
		413,237.15
Clothing and small stores purchased:		
Purchased at navy-yards and stations	328,492.24	
Purchased from United States Marine Corps	659.84	
Pay roll at naval clothing factory (manufacturing)	58,600.06	
Purchased by pay officers on ships	2,549.91	
		390,302.05
Gains (money):		
Gain by 10 per cent addition to invoice prices—		
Yards	328.36	
Ships	36,115.09	
	36,443.45	
Gain on average prices on issues, ships	3,471.39	
Profit and loss:		
Yards	358.88	
Ships	5.05	
		40,278.77
Gains (property):		
Gain on issues, yards	15.93	
Gain by revaluation by surveys, yards	86.07	
		102.00
Total		2,386,264.87

EXPENDITURES.

Payments made for purchases in 1897	408,656.23	
Less due for purchases in 1896	37,735.27	
	370,920.96	
Due for purchases made in 1897	19,056.46	
Paid United States Marine Corps (due for purchases in 1896)	324.63	
		390,302.05
Accounts settled by the Auditor for the Navy Department:		
Fourth quarter, 1896	88,035.79	
First quarter, 1897	100,886.10	
Second quarter, 1897	119,874.10	
Third quarter, 1897	89,411.47	
		398,207.46
Clothing and small stores expended:		
Issued to officers and crew, ships	352,954.08	
Issued to marines, ships	8,539.99	
Issued to apprentices as clothing bounty, ships	30,692.32	
Issued to other departments, ships	5,128.67	
Sold for cash, ships	3,608.78	
	400,923.84	
Sold at public auction, yards	5,538.91	
Issued to other departments, yards	3,041.72	
Sold for cash, yards	3,591.38	
Issued to United States Naval Prison, Boston, Mass.	141.30	
		413,237.15

Clothing and small-stores account—Continued.

Losses:		
Loss on issues, ships	$1,042.27	
Loss by revaluation by surveys, ships	877.73	
Lost in transit, Pacific mail steamer *Columbia*, July 14, 1896, ships	462.99	
	2,382.99	
Issued for use (expense account), yards	44.08	
Loss by revaluations by surveys (clothing factory), yards	71.19	
Loss by sales at public auction (adjustment), yards	11,376.03	
Loss by fire (Washington, D. C., April 23, 1897), yards	459.26	
		$14,333.55
Total expenditures		1,216,080.21
Clothing and small stores' fund, July 1, 1897		1,170,184.66
Total		2,386,264.87

Statement of the clothing and small-stores fund for the fiscal year ending June 30, 1897.

ASSETS.

Cash accounts:		
Balance in United States Treasury to credit of fund	$307,726.49	
Balance in hand of paymaster, navy-yard, New York	2,415.13	
		$310,141.62
Stock accounts:		
On hand at navy-yards and stations	376,133.00	
On hand at naval clothing factory	11,141.42	
On hand condemned to be sold	6,825.34	
On board ships in commission	365,210.91	
Clothing and small stores in transit	16,950.93	
		776,261.60
Accounts receivable:		
For issues and sales awaiting adjustment by the Auditor for the Navy Department, fourth quarter 1897		97,623.62
Due from proceeds of sales at public auction		5,538.91
Total		1,189,565.75

LIABILITIES.

Due for unpaid bills for stores delivered	$14,012.47	
Due for reservations unpaid on contracts	4,906.71	
		18,919.18
Due for ships' bills unpaid		78.13
Due United States Marine Corps—		
Yards	363.98	
Ships	19.80	
		383.78
Total liabilities		19,381.09
Clothing and small-stores fund, July 1, 1897		1,170,184.66
Total		1,189,565.75

Statement of purchases and payments.

PURCHASES.

Due for clothing and small stores, July 1, 1896:		
At navy-yards and stations, unpaid bills	$29,212.93	
At navy-yards and stations, reservations unpaid	8,108.94	
		$37,321.87
On board ships, unpaid bills		88.77
Due United States Marine Corps, fourth quarter 1896		324.63
		37,735.27

Statement of purchases and payments—Continued.

Due for purchases in fiscal year 1897:		
At navy-yards and stations	$328,492.24	
Clothing factory pay roll (manufacturing)	58,600.06	
		$387,092.30
On board ships		2,549.91
Purchased from United States Marine Corps—		
Yards	$640.04	
Ships	19.80	
		659.84
Total		428,037.32

PAYMENTS.

Payments made for clothing and small stores during fiscal year 1897:		
At navy-yards and stations	348,612.19	
Clothing factory pay roll (New York yard)	58,600.06	
		407,212.25
On board ships		843.29
Paid United States Marine Corps		600.69
		408,656.23
Balances due on clothing and small stores:		
At navy-yards and stations, unpaid bills	14,012.47	
At navy-yards and stations, reservations unpaid	4,906.71	
		18,919.18
On board ships, unpaid bills		78.13
Due United States Marine Corps—		
Yards	363.98	
Ships	19.80	
		383.78
Total		428,037.32

Clothing and small stores in transit June 30, 1897.

Fourth quarter, 1897:	
From H. E. Jewett, general storekeeper, navy-yard, Pensacola, Fla.—	
To Paymaster M. M. Ramsay, U. S. S. *Montgomery*	1,064.46
From A. W. Bacon, general storekeeper, navy-yard, Mare Island, California—	
To Paymaster B. P. Du Bois, U. S. F. C. S. *Albatross*	152.90
From A. S. Kenny, general storekeeper, navy-yard, New York—	
To Paymaster I. G. Hobbs, U. S. S. *Brooklyn*	182.34
To Paymaster W. W. Woodhull, U. S. S. *Vesuvius*	577.63
To Paymaster C. W. Littlefield, U. S. S. *Maine*	181.80
To Paymaster D. A. Smith, U. S. S. *Olympia*	96.19
To Paymaster C. M. Ray, U. S. S. *Lancaster*	107.94
To Paymaster E. B. Rogers, U. S. S. *Minneapolis*	1,139.49
To Paymaster C. M. Ray, U. S. S. *Lancaster*	1,518.38
To Paymaster R. P. Lisle, U. S. S. *San Francisco*	193.23
To Paymaster D. A. Smith, U. S. S. *Olympia*	102.00
To Paymaster D. A. Smith, U. S. S. *Olympia*	252.40
To Paymaster A. W. Bacon, general storekeeper, navy-yard, Mare Island, Cal	4,201.69
To Paymaster A. W. Bacon, general storekeeper, navy-yard, Mare Island, Cal	3,807.65
To Paymaster A. W. Bacon, general storekeeper, navy-yard, Mare Island, Cal	799.79
To Paymaster H. T. B. Harris, general storekeeper, navy-yard, Norfolk, Va	2,375.37
To Paymaster A. W. Bacon, general storekeeper, navy-yard, Mare Island, Cal	197.67
Total	16,950.93

STATEMENT O.

Statement of expenditures of money and material at shore stations and objects to which applied during the fiscal year ending June 30, 1897 (not including pay of officers).

TITLE A.—COST OF CONSTRUCTION OF SHIPS.

Vessel.	Money vouchers.	Labor.	Material.	Total.
Amphitrite	$23,456.09	$874.60	$10.47	$24,341.16
Monterey	25,201.78			25,201.78
New York	26,027.65	155.60		26,183.25
Raleigh		940.44	32.20	972.64
Moutgomery	1,321.96			1,321.96
Detroit	1,324.85			1,324.85
Ericsson	7,315.46	9,336.99	1,494.25	18,146.61
Castine	769.15			760.15
Katahdin	1,000.00	18,080.00	5,654.62	24,734.62
Foote	36,049.16	1,545.18	1,378.12	38,972.46
Rodgers	35,269.24	1,542.16	1,378.13	38,189.53
Winslow	35,539.24	1,523.92	5.79	37,068.95
Unadilla		88.17		88.17
Porter	79,309.84	641.81	1,421.58	81,373.18
Dupont	77,760.00	4.39	1,253.73	79,018.12
Rowan	57,874.00	5,182.87	129.53	63,186.40
Samoset		43,090.50	11,553.95	54,644.45
Submarine torpedo boat	46,230.00	1,919.32		48,149.32
Dahlgren	433.60	36.62		470.22
Indiana	28,526.12	16,904.74	2,366.68	47,797.54
Massachusetts	245,747.87	40,653.93	11,382.26	297,784.06
Oregon	990,340.64	15,520.00	3,932.50	1,009,793.14
Columbia	1,755.90	10.00		1,765.90
Minneapolis	1,541.11	12.00		1,553.11
Brooklyn	1,172,124.64	32,650.76	8,992.80	1,213,768.20
Iowa	1,921,007.18	76,769.23	33,105.63	2,030,882.04
Nashville	113,168.08	12,774.29	1,412.50	127.354.87
Wilmington	146,394.82	10,463.61	532.65	157,391.08
Helena	151,975.27	10,008.89	72.08	162,056.24
Annapolis	177,517.50	18,950.06	2,685.06	199.152.62
Vicksburg	109,720.14	13,295.19	547.00	123,562.33
Newport	109,850.15	13,781.97	1,588.45	125,220.57
Princeton	163,975.00	19,839.94	4,847.05	188,661.99
Wheeling	157,959.86	12,797.15	1,952.12	172,709.13
Marietta	161,289.88	12,913.86	2,085.54	176,289.28
Kearsarge	1,523,988.83	19,164.44	1,752.86	1,544,906.13
Kentucky	1,276,314.87	16,190.42	649.92	1,293,155.21
Puritan	1,827.99	191,860.05	54,884.40	248,572.44
Maine	16,187.01	2,059.52	481.89	18,728.42
Texas	4,496.06	45,222.44	10,637.29	60,355.79
Training vessel, Naval Academy		1,056.81		1,056.81
Terror	15,499.64	16,335.74	5,330.20	37,165.58
Illinois	234,116.77	13,105.00	6.89	247,228.66
Alabama	318,567.80	16,137.13	23.97	334,728.90
Wisconsin	241,313.30	14,329.51	21.79	255,664.60
Monadnock	501.25	836.34	21,445.86	22,783.45
T. A. Craven	433.60	34.13		467.73
Farragut	20,908.61	425.70		21,334.81
Davis	15,026.91	700.43	5.96	15,733.30
Fox	15,026.91	710.43	5.96	15,743.30
Morris	348.64	66.50		415.14
Talbot	848.64	366.46	30.93	746.03
Gwin	348.64	356.46	27.88	732.98
Mackenzie	9,078.66	4,035.78	27.88	13,142.32
McKee	348.69	1,474.46	27.88	1,851.03
Olympia	2,795.63	16.50		2,812.13
Marblehead	1,224.10			1,224.10
Torpedo boat No. 19	23.18	11.00		34.18
Torpedo boat No. 20	23.18	11.00		34.18
Torpedo boat No. 21	23.19	11.00		34.19
Total	9,806,548.28	736,825.44	195,176.20	10,738,549.92

TITLE D.—REPAIRS TO SHIPS.

Newark		$29,706.39	$10,215.18	$39,921.57
Charleston		20,136.14	10,025.69	30,161.83
Yorktown			2.97	2.97
Petrel		79,494.44	13,710.12	93,204.56
Baltimore		148,197.60	32,669.89	180,867.49
Vesuvius	$474.50	15,961.81	4,363.19	20,799.50
Maine		22,941.56	12,765.45	35,707.01
Texas	1,391.07	43,281.00	9,702.63	54,374.70

Statement of expenditures of money and material at shore stations, etc.—Continued.

TITLE D.—REPAIRS TO SHIPS—Continued.

Vessels.	Money vouchers.	Labor.	Material.	Total.
Cushing	$9.50	$5,627.77	$803.03	$6,440.30
Puritan	30.00	795.93	280.76	1,106.69
Monadnock	....	7,096.02	2,435.63	9,531.65
Amphitrite	....	14,876.78	4,126.28	19,003.06
Philadelphia	....	1,829.63	1,021.00	2,850.63
Concord	....	117,736.80	25,354.40	143,091.20
Bennington	....	10,767.21	2,060.99	12,828.20
Miantonomoh	3,245.73	31,479.18	9,698.00	44,422.91
Monterey	....	13,500.49	5,341.43	18,841.92
New York	473.26	22,938.39	9,948.03	33,359.68
Cincinnati	....	1,037.14	350.76	1,387.90
Raleigh	....	21,614.19	8,630.65	30,244.84
Montgomery	....	12,016.84	6,956.65	18,973.49
Detroit	....	1,940.35	871.35	2,811.70
Marblehead	....	8,416.59	4,279.40	12,695.99
Bancroft	....	12,826.62	3,094.69	15,921.31
Castine	145.60	36,781.51	8,298.34	45,225.45
Katahdin	....	4,059.88	2,371.24	6,431.12
Indiana	398.75	14,984.52	10,406.15	25,789.42
Massachusetts	11.00	12,984.81	6,689.56	19,685.37
Oregon	75 00	2,679.33	5,600.26	8,354.59
Columbia	....	5,878.15	5,612.80	11,490.95
Chicago	6,999.33	240,861.70	45,488.35	293,349.38
Atlanta	1,120.00	11,573.39	4,280.69	16,974.08
Boston	....	40.17	2.69	42.86
Dolphin	....	34,448.52	14,453.23	48,901.75
Pensacola	....	33,722.93	9,617.11	43,340.04
Richmond	....	13,609.44	7,228.71	20,838.15
Swatara	....	737.80	8.00	745.80
Marion	....	19.22	1.74	20.96
Mohican	....	8,189.21	7,751.62	15 940.83
Adams	....	2,125.82	271.34	2,397.16
Alliance	....	47,138.63	13,102.22	60,240.85
Essex	....	47,388.68	13,751.62	61,140.30
Nipsic	....	....	68.29	68.29
Thetis	....	5,060.15	705.22	5,765.37
Alert	....	4,830.45	1,411.62	6,242.07
Ranger	....	18,189.18	3,593.96	21,783.14
Michigan	....	2,670.38	524.70	3,195.08
Canonicus	....	223.26	127.66	350.92
Mahopac	....	714.40	64.05	778.45
Manhattan	....	222.02	125.71	347.73
Camanche	....	9.40	....	9.40
Catskill	....	1,710.26	197.68	1,907.94
Jason	....	155.42	174.68	330.10
Lehigh	....	1,323.32	192.23	1,515.55
Montauk	....	112.62	174.60	287.22
Nahant	....	93.74	174.60	268.34
Nantucket	224.00	....	....	224.00
Passaic	....	334.58	50.52	385.10
Fern	....	2,299.02	742.69	3,041.71
Fortune	....	24,822.90	5,550.20	30,373.10
Leyden	....	5,099.71	1,996.33	7,096.04
Nina	....	1,848.32	457.62	2,305.94
Standish	....	8,858.70	1,268.32	10,127.02
Triton	....	1,204.19	294.24	1,498.43
Vermont	....	3,453.91	819.84	4,273.75
Independence	....	107.00	43.08	150.08
Constitution	....	1,610.56	116.26	1,726.82
Monongahela	....	4,763.91	1,208.80	5,972.71
Franklin	....	5,035.55	2,936.74	7,972.29
Hartford	....	65,972.97	28,837.64	94,810.61
Narkeeta	....	3,925.09	1,463.36	5,388.45
Wahneta	....	6,724.49	1,353.93	8,078.42
Iwana	....	892.60	....	892.60
Traffic	....	3,492.27	191.56	3,683.83
Olympia	....	278.04	73.02	351.06
Unadilla	25.00	761.12	75.97	862.09
Ericsson	....	11,545.74	1,188.35	12,734.09
Brooklyn	....	9.68	302.54	312.22
Porter	9.30	552.27	369.43	931.00
Terror	....	1,511.62	605 29	2,116.91
Total	14,632.04	1,351,861.42	391,124.57	1,757,618.03

Statement of expenditures of money and material at shore stations, etc.—Continued.

TITLE E.—REAL ESTATE AND CHATTELS.

Navy-yards, etc.	Money vouchers.	Labor.	Material.	Total.
Navy-yard, Portsmouth, N. H.		$315.40	$1,119.06	$1,434.46
Navy-yard, Boston, Mass.	$5,168.00		9,591.50	14,759.50
Naval station, Newport, R. I.	13,632.49	6,129.50	7,073.72	26,835.71
Naval station, New London, Conn.			209.78	209.78
Navy-yard, League Island, Pa.	41,608.65	7,652.64		49,261.29
Navy-yard, Brooklyn, N. Y.	366,165.14	5,089.77	2,988.09	374,243.00
Naval Academy, Annapolis, Md.	20,400.00	11,897.48	24,876.24	57,173.72
Navy-yard, Washington, D. C.	36,579.52	31,057.11	49,123.48	116,760.11
Naval Observatory, Washington, D. C.	21,449.43			21,449.43
Navy-yard, Norfolk, Va.	11,932.60	27,730.83	30,238.88	69,902.31
Naval station, Port Royal, S. C.	66,297.15		2,904.26	69,201.41
Naval station, Key West, Fla.	1,549.60		16,112.19	17,661.79
Naval station, Pensacola, Fla.			337.75	337.75
Navy-yard, Mare Island, Cal.	24,234.90	44,455.15	18,954.80	87,644.85
Naval station, Puget Sound, Wash.	68,422.94	6,876.27	8,040.04	83,339.25
Naval magazine, Dover, N. J.	1,990.00	6,937.62		8,927.62
Naval Proving Ground, Indian Head, Md.		1,701.35	2,386.06	4.087.41
Total	670,430.42	149,843.12	173,955.85	1,003,229.39

TITLE F.—MACHINERY PLANT.

Navy-yard, Portsmouth, N. H.:				
Bureau of Construction and Repair		$2,215.52	$4,470.86	$6,686.38
Navy-yard, Boston, Mass.:				
Bureau of Yards and Docks			4,495.00	4,495.00
Bureau of Construction and Repair		4,797.95	13.75	4,811.70
Naval station, Newport, R. I.:				
Bureau of Navigation			964.69	964.69
Bureau of Ordnance			1,982.78	1,982.78
Bureau of Steam Engineering			530.13	530.13
Navy-yard, New York, N. Y.:				
Bureau of Equipment			2.823.76	2,823.76
Bureau of Ordnance			2,886.86	2,886.86
Bureau of Construction and Repair		6,977.94	26,593.28	33,571.22
Bureau of Steam Engineering		1,839.30	1,440.58	3,279.88
Navy-yard, League Island, Pa.:				
Bureau of Construction and Repair		587.32	393.82	981.14
Bureau of Steam Engineering		397.82	1,835.37	2,233.19
Naval Academy, Annapolis, Md.:				
Bureau of Navigation			1,524.40	1,524.40
Navy-yard, Washington, D. C.:				
Bureau of Ordnance		21,039.32	54,117.10	75,156.42
Bureau of Construction and Repair		425.60	93.47	519.07
Navy-yard, Norfolk, Va.:				
Bureau of Yards and Docks			7,291.00	7,291.00
Bureau of Equipment			211.65	211.65
Bureau of Ordnance			1.99	1.99
Navy-yard, Mare Island, Cal.:				
Bureau of Construction and Repair			11,910.24	11,910.24
Bureau of Steam Engineering		125.20	2,254.57	2,379.77
Total		38,405.97	125,835.30	164,241.27

ement of expenditures of money and material at shore stations, etc.—Continued.

TITLE G.—GENERAL MAINTENANCE.

Navy-yards, etc.	Money vouchers.	Labor.	Material.	Total.
ard, Portsmouth, N. H	$426.96	$92,075.35	$25,328.36	$120,842.27
ard, Boston, Mass	7,180.10	113,339.37	35,239.15	155,758.62
tation, New London, Conn	918.42	8,259.59	1,528.66	10,706.67
ation, Newport, R. I	8,773.78	73,428.36	44,234.20	126,436.34
ard, New York, N. Y	73,035.64	434,910.28	189,677.24	697,623.16
ard, League Island, Pa	19,141.51	138,937.82	31,891.42	189,970.75
cademy, Annapolis, Md	8,838.71	149,219.34	72,002.25	230,060.30
ard, Washington, D. C	5,020.40	134,281.46	64,038.82	203,340.68
roving Ground, Md	163.51	19,672.80	6,443.00	26,279.31
ard, Norfolk, Va	4,549.09	230,671.62	66,810.36	302,031.07
tation, Port Royal, S. C	2,227.97	12,924.69	9,357.42	24,510.08
tation, Key West, Fla	5,057.65	8,724.61	1,797.13	15,579.39
ard, Pensacola, Fla	600.72	32,218.34	4,992.23	37,811.29
ard, Mare Island, Cal	7,404.67	217,447.39	112,380.32	334,220.78
tation, Puget Sound, Wash	2,835.76	18,778.26	11,971.48	33,585.50
ospital, Widows Island, Me	428.01	720.00		1,148.01
ospital, Portsmouth, N. H	4,844.76	2,751.47		7,596.23
ospital, Chelsea, Mass	8,515.87	3,300.00		11,815.87
ospital, New York, N. Y	31,211.99	8,303.96		39,515.95
boratory, New York, N. Y	38,174.24	4,896.00		43,070.24
ospital, Washington, D. C	9,012.93	3,582.15		12,595.08
ospital, Philadelphia, Pa	18,322.65	3,455.53		21,778.18
ispensary, Washington, D. C	2,014.16			2,014.16
of hygiene, Washington, D. C	9,155.94	1,320.00		10,475.94
ospital, Norfolk, Va	20,289.17	3,819.05		24,108.22
ospital, Pensacola, Fla	2,427.27	660.00		3,087.27
ospital, Mare Island, Cal	18,462.12	5,119.71		23,581.83
agazine, Chelsea, Mass	611.00			611.00
pot, Malden, Mass	84.70			84.70
agazine, Dover, N. J		4,534.19		4,534.19
ome, Philadelphia, Pa	58,627.16	18,049.65		76,676.81
y office, Baltimore, Md	467.69			467.69
raphic Office, Washington, D. C	7,398.05			7,398.05
bservatory, Washington, D. C	1,913.74			1,913.74
agazine, Craney Island, Virginia	27.84			27.84
Harbor, N. Y	803.78			803.78
	375.00			375.00
ospital, Newport, R. I	2,603.08			2,603.08
otal	381,946.04	1,745,400.99	677,692.04	2,805,039.07

TITLE P.—REPAIRS TO EQUIPAGE.

Vessel.	Money vouchers.	Labor.	Material.	Total.
		$450.00	$101.36	$551.36
		937.71	135.55	1,073.26
rite		48.30	1 26	49.56
gton		351.35	5.72	357.07
		2,090.30	1,310.44	3,400.83
		16.71		16.71
		107.24	42.49	149.73
n		122.96		122.96
		202.99	23.03	226.02
ead		163.00	25.42	188.42
ahela		196.36	2.70	199.06
mery		3.06	9.61	12.67
		2,888.75	412.86	3.301.61
rk		73.16	15.65	88.81
		56.22	3.27	59.49
		50.56	33.12	83.68
s		2.00		2.00
n		57.32	3.58	60.90
usetts		144.38	7.21	151.59
		99.10	8.48	107.58
		15.00		15.00
ia		14.64		14.64
		1.76		1.76
n		173.49	14.13	187.62
		324.32	13.43	337.75
t		942.02	60.52	1,002.54
		219.16	1.29	220.45
		1.45		1.45
		315.54		315.54
otal		10,068.94	2,231.12	12,300.06

Statement of expenditures of money and material at shore stations, etc.—Continued.

TITLE V.—MISCELLANEOUS.

Vessel.	Money vouchers.	Labor.	Material.	Total.
Advertising	$9,285.32			$9,285.32
Freight	57,033.47			57,033.47
Incidental expenses of bureaus	24,682.43			24,682.43
Transportation of enlisted men	21,727.07			21,727.07
Charles W. Sponsell, patent for improvement in breech-loading ordnance	15,000.00			15,000.00
H. P. Hurst, patent for improvement in breech-loading ordnance	25,000.00			25,000.00
On account of charter of steamship City of Everett to carry food supplies to India	12,692.40			12,692.40
Mileage claims	16,321.49			16,321.49
Printing, stationery, etc., for inspectors; medals, court-martial and investigation expenses, notary's fees, custom-house charges, etc	30,848.83			30,848.83
New rifles furnished the Marine Corps			48,648.22	48,648.22
Massachusetts nautical training school			15,665.84	15,665.84
Miscellaneous labor at navy-yards, pay for holidays, etc		214,846.56	10,595.50	225,442.06
Total	212,591.01	214,846.56	74,909.56	502,347.13

TITLE Z.—CONVERSION ACCOUNT.

Bureau of Equipment:				
Navy-yard, Portsmouth, N. H		$249.78	$333.87	$583.65
Navy-yard, Boston, Mass		122,370.56	193,591.77	315,962.33
Navy-yard, New York, N. Y		41,028.52	44,954.99	85,983.51
Navy-yard, League Island, Pa		314.14	2,950.45	3,264.59
Navy-yard, Washington, D. C		6,331.03	2,076.71	8,407.74
Navy-yard, Norfolk, Va		14,415.97	28,191.17	42,607.14
Navy-yard, Mare Island, Cal		53,336.09	106,854.82	160.190.91
Bureau of Ordnance:				
Navy-yard, Portsmouth, N. H			8.80	8.80
Navy-yard, Boston, Mass		355.72	3,045.33	3,401.05
Naval station, Newport, R. I		41,444.40	29,628.02	71,072.42
Navy-yard, New York, N. Y		17,623.35	383,609.67	401,233.02
Navy-yard, League Island, Pa		12,444.20	227,535.13	239,979.33
Navy-yard, Washington, D. C		457,114.42	804,122.82	1,261,237.24
Naval Proving Ground, Md		2.28	82.50	84.78
Navy-yard, Norfolk, Va		3,480.94	179,585.70	183,066.64
Navy-yard, Mare Island, Cal		20,050.09	524,754.46	544,804.55
Bureau of Construction and Repair:				
Navy-yard, Portsmouth, N. H		50,948.99	13,295.84	64,244.83
Navy-yard, Boston, Mass		4,197.32	536.73	4,734.05
Navy-yard, New York, N. Y		51,537.90	33,365.00	84,902.90
Navy-yard, League Island, Pa		32,893.77	13,845.19	46,738.96
Navy-yard, Washington, D. C		4,109.91	234.09	4,344.00
Navy-yard, Norfolk, Va		53,042.27	66,825.86	119,868.13
Navy-yard, Mare Island, Cal		61,655.75	54.406.25	116,062.00
Bureau of Steam Engineering:				
Navy-yard, Portsmouth, N. H		26,775.28	6,613.09	33,388.37
Navy-yard, Boston, Mass		3.28	7.20	10.48
Navy-yard, New York, N. Y		24,551.84	29,458.51	54,010.35
Navy-yard, League Island, Pa		880.52	3,748.55	4,629.07
Navy-yard, Norfolk, Va		12,162.66	39,995.58	52,158.24
Navy-yard, Mare Island, Cal		21,699.97	31,173.18	52,873.15
Bureau of Supplies and Accounts:				
Navy-yard, New York, N. Y		58,600.06	98,890.89	157,490.95
Total		1,193,621.01	2,923,722.17	4,117,343.18

Statement of expenditures of money and material at shore stations, etc.—Continued.

RECAPITULATION.

Titles.	Vouchers.	Labor.	Material.	Total.
A.—Cost of construction of ships	$9,806,548.28	$736,825.44	$195,176.20	$10,738,549.92
D.—Repairs of ships	14,632.04	1,351,861.42	391,124.57	1,757,618.03
E.—Real estate and chattels	679,430.42	149,843.12	173,955.85	1,003,229.39
F.—Machinery plant		38,405.97	125,835.30	164,241.27
G.—General maintenance	381,946.04	1,745,400.99	677,692.04	2,805,039.07
N.—Models and experiments	32,709.51	32,258.85	87,350.97	152,319.33
O.—Naval militia, arming and equipping	11,477.82	131.64	56,444.27	68,053.73
P.—Repairs to equipage		10,068.94	2,231.12	12,300.06
V.—Miscellaneous	212,591.01	214,846.56	74,909.56	502,347.13
W.—Deterioration and waste (repairing instruments)	22,901.13			22,901.13
Z.—Conversion account (for manufacture)		1,193,621.01	2,923,722.17	4,117,343.18
Expended for specific objects as above	11,162,236.25	5,473,263.94	4,708,442.05	21,343,942.24
X.—Supplies in store	6,306,049.48			6,306,049.48
Total	17,468,285.73	5,473,263.94	4,708,442.05	27,649,991.72

STATEMENT D.

Statement showing the total cost of maintenance of navy-yards and stations during fiscal year ending June 30, 1897.

	Pay of officers, etc., per Statement A.	Money vouchers, labor, and material, per Statement C.	Total cost of maintenance.
Navy-yard, Portsmouth (including naval hospital, Widows Island, Me.)	$47,514.54	$129,586.51	$177,101.05
Navy-yard, Boston	65,615.72	168,270.19	233,885.91
Naval station, Newport	64,105.88	129,039.42	193,145.30
Naval station, New London	18,306.99	10,706.67	29,013.66
Navy-yard, New York	165,671.10	784,743.54	950,414.64
Navy-yard, League Island	54,713.20	211,748.93	266,462.13
Naval Academy, Annapolis	254,496.03	230,060.30	484,556.33
Naval Observatory, Washington	24,561.10	1,913.74	26,474.84
Naval Dispensary and Museum of Hygiene, Washington	21,496.84	12,490.10	33,986.94
Navy-yard, Washington	112,309.26	215,935.76	328,245.02
Naval Proving Ground, Indian Head	10,609.72	26,279.31	36,889.03
Navy-yard, Norfolk	82,515.72	326,167.13	408,682.85
Naval station, Port Royal	22,860.46	24,510.08	47,370.54
Naval station, Key West	6,325.94	15,579.39	21,905.33
Navy-yard, Pensacola	16,024.57	40,898.56	56,923.13
Navy-yard, Mare Island	86,168.58	357,802.61	443,971.19
Naval station, Puget Sound	17,459.12	33,585.50	51,044.62
Naval Home, Philadelphia	24,009.29	76,676.81	100,686.10
Navy pay office, Baltimore	7,327.67	467.69	7,795.36
Hydrographic Office, Washington, and branches	28,096.49	7,398.05	35,494.54
Sackett's Harbor, N. Y		803.78	803.78
Erie, Pa		375.00	375.00
Naval hospital, Yokohama	14,894.26		14,894.26
Coaling station, Honolulu	1,600.75		1,600.75
Coaling station, Pichilingue	177.75		177.75
	1,146,860.98	2,805,039.07	3,951,900.05

STATEMENT E.

Statement showing cost of maintaining ships in commission during fiscal year ending June 30, 1897, excepting medical stores.

Vessels.	Money expended.										
	Pay of officers, crew, and marines.	Rations commuted.	Special credits—(honorable discharge, outfits to apprentices).	Incidental expenses (current repairs abroad, freight, pilotage, postage, etc.).							
				Equipment.	Navigation.	Ordnance.	Construction and repair.	Steam engineering.	Supplies and accounts.	Medicine and surgery.	Secretary's office.
Adams	$65,074.70	$7,670.70	$741.29	$341.01	$108.60			$10.50	$21.40		$226.95
Albatross	34,840.78	6,558.30							4.59	$2.95	17.46
Alert	64,550.38	5,807.10	1,197.00	346.22	194.50		$237.78	3.08	100.00	55.00	139.81
Alliance	63,588.27	10,932.90	1,786.00	17.16	173.50		45.74		40.53	60.08	274.06
Amphitrite	83,073.64	8,316.90	465.00	639.18	40.30	$6.40	1.94			43.43	82.09
Bancroft	46,795.22	4,738.20		38.07	47.10		745.99		83.84	377.33	208.74
Bennington	84,563.13	8,595.60	867.00	2.05	141.00		16.15	3.25	211.14	114.89	805.08
Boston	116,985.34	11,397.45	108.00	181.68	553.99	18.47	3,258.48	265.04	67.96	905.19	926.44
Brooklyn	117,170.46	16,546.80	357.00	1,543.11	16.67	.05	2.35	9.82	127.75	82.93	1,993.06
Castine	68,452.37	6,681.60	465.00	278.03	12.55	1.02	1,867.01	295.94	43.18	285.31	272.96
Charleston	9,620.45	815.70							1.68	1.60	15.00
Cincinnati	134,041.69	12,270.90	1,695.00	311.68	15.04	1.54	1,532.59	10.18	63.06	128.24	266.60
Coast-Survey vessels	149,224.84	29,475.60			39.50				2.02	596.01	19.85
Columbia	169,986.42	16,791.20	2,124.00	2,920.33	48.60	1.38				58.25	117.80
Concord	8,228.40	891.90	83.90						.85		45.40
Constellation	129,167.35	49,199.30	17,148.42	1.33	56.56	1.12			2.87	134.24	59.06
Cushing	10,880.64	1,804.20	216.00								3.00
Detroit	100,584.71	9,478.20	2,043.00	410.72	69.06	3.96	1,043.03	358.26	42.22	358.15	1,636.28
Dolphin	57,849.73	12,304.50	1,113.00	423.50			5.60			16.40	233.32
Ericsson	3,007.67	471.90	63.00						3.00		
Essex	71,571.31	15,118.80	1,869.00	98.87	271.13	.40	4.19	78.30	31.75	38.36	112.78
Fern	25,099.24	5,146.20	528.00		2.00					50.00	
Fish Hawk	18,680.53	4,322.40								91.00	7.60
Franklin	64,145.12	11,688.40	7,350.00						3.63	24.00	2.89
Independence	58,542.50	15,426.93	22,087.75						9.74	41.55	148.56
Indiana	186,464.69	29,159.10	1,233.00	2,677.76	15.85	3.85	3.60		30.42	110.11	212.44
Iowa	6,401.88	572.10									
Katahdin	29,291.14	5,025.90	579.00							7.50	
Lancaster	116,218.72	11,148.90	753.00	426.36	547.46	20.42	1,708.30	227.73	268.24	1,700.53	2,164.92
Machias	70,117.84	6,436.80	714.00	696.29	331.12	6.94	2,001.42	1,136.88	56.30	582.81	1,329.66
Maine	159,126.60	16,660.10	385.00	2,008.29	44.60	31.00	7.20	4.70	15.95	27.05	188.36
Marblehead	97,229.87	9,398.53	1,119.00	838.68	145.08	21.82	862.14	86.68	105.98	321.27	217.39
Marion	88,507.63	8,725.50	483.00	1,995.02	833.97	5.98	406.82	445.60	438.28	886.43	1,326.34
Massachusetts	183,449.06	23,363.10	741.00	2,031.73	42.03	61.30		.70		250.08	86.38
Michigan	46,951.63	10,509.60	1,503.00	692.40	309.54	36.81	5,662.12	3.35	43.80	22.45	288.39

Minneapolis	201,198.84	17,381.40	657.00	972.44	861.06	11.56	4,274.01	43.64	148.90	256.90	636.94
Monadnock	87,935.45	8,211.90	138.00	569.80	65.00	3.55	18.10	28.90	72.89	303.50	97.03
Monocacy	67,099.46	6,714.00	1,443.00	244.54	14.68	1.41	3,142.68	2,012.53	103.05	1,182.96	955.47
Monongahela	89,853.57	6,583.20	......	49.17	2.79	......	.14	......	18.26	10.87	33.80
Monterey	93,242.76	8,129.40	1,875.00	171.62	170.50	38.61	7.50	174.11	55.55	85.43	153.33
Montgomery	102,563.70	9,779.40	882.00	893.00	903.10	......	......	......	......	32.15	88.88
Naval Academy vessels	54,259.99	10,625.70	177.00	......	......	......	......	......	......	......	......
Newark	97,634.57	9,663.00	1,251.00	1,454.86	112.30	......	......	......	9.45	193.06	66.80
New York	237,762.76	35,542.50	5,043.00	3,198.68	391.70	5.15	......	......	23.00	98.05	791.75
Olympia	200,925.75	20,699.10	2,466.00	318.74	1,257.38	48.76	7,460.89	567.04	227.07	892.57	4,076.07
Oregon	170,727.10	16,521.00	615.00	987.66	77.38	1.20	45.10	3.78	30.46	285.20	121.53
Petrel	33,402.63	3,477.00	312.00	215.87	100.00	.96	......	6.79	12.85	39.12	29.89
Philadelphia	183,888.27	22,285.80	1,344.00	1,664.74	411.25	32.71	10.20	1,320.60	7.90	322.75	1,789.18
Pinta	35,291.98	6,357.00	1,221.00	......	446.50	......	......	......	......	979.74	40.50
Porter	6,287.10	1,175.70	273.00	......	......	......	......	......	......	2.36	......
Puritan	54,362.64	6,413.40	396.00	320.00	29.45	......	......	......	6.05	14.30	5.37
Raleigh	131,024.87	13,089.90	1,470.00	1,260.19	314.50	3.05	......	201.66	266.80	91.40	137.84
Richmond	45,254.93	6,694.20	13,993.85	5.00	20.90	......	......	1.75	6.09	84.30	27.96
San Francisco	169,176.05	15,610.80	2,499.00	349.58	733.25	24.33	1,086.36	29.64	330.62	791.71	978.12
Standish	1,631.00	306.30	......	......	......	......	......	......	......	......	......
Terror	81,679.96	7,742.70	348.00	455.70	55.65	......	......	......	12.50	52.03	14.76
Texas	139,917.91	13,953.00	303.00	2,800.96	32.75	......	85.80	.77	25.20	44.01	727.27
Thetis	56,788.82	11,334.70	366.00	143.09	1,402.96	......	......	56.50	5.00	48.65	52.65
Vermont	98,189.55	18,743.70	46,307.00	......	4.53	......	......	......	8.25	76.99	46.27
Vesuvius	18,814.23	1,815.60	......	888.14	111.00	......	......	124.55	......	......	9.96
Wabash	66,042.61	13,046.40	7,835.11	......	......	......	......	......	......	69.00	......
Wilmington	9,862.32	1,089.60	......	99.66	......	......	......	......	......	13.40	14.02
Yantic	58,744.87	6,047.70	321.00	523.77	347.96	43.75	111.15	65.38	155.42	289.58	562.57
Yorktown	89,301.21	8,724.00	1,488.00	1,889.99	45.00	63.54	1,993.84	2,008.40	191.81	315.47	873.22
Total	5,372,348.85	701,209.41	162,841.32	38,396.67	12,001.34	501.04	37,648.22	9,586.05	3,537.30	13,948.64	25,759.85

Statement showing cost of maintaining ships in commission during fiscal year 1897, excepting medical stores—Continued.

Vessels.	Value of stores expended.						Repairs at navy-yards while in commission.	Total.	Time in commission, months
	Equipment.	Navigation.	Ordnance.	Construction and repair.	Steam engineering.	Supplies and accounts.			
Adams	$2,215.93	$242.02	$1,473.29	$1,060.27	$4,324.52	$6,884.94	$2,397.16	$92,793.28	12
Albatross	15.47	.18				38.59		41,478.32	12
Alert	3,482.38	592.32	3,101.48	2,276.06	9,019.24	5,625.98	6,242.07	102,970.40	12
Alliance	2,728.16	128.92	4,286.20	529.49	1,366.80	4,363.11	60,240.85	150,561.77	12
Amphitrite	2,535.90	1,051.42	6,133.39	1,694.75	8,020.53	4,636.58	19,003.06	135,744.51	12
Bancroft	1,997.17	332.93	1,092.80	1.148.63	5,008.74	3,908.40	15,921.31	82,444.47	12
Bennington	2,754.93	1.089.97	2,643.30	2,431.27	21,303.33	6,418.96	12,828.20	144,789.25	12
Boston	5,294.75	842.43	6,887.03	5,210.53	31,395.01	11,557.73	42.86	195,898.38	12
Brooklyn	2,140.50	1,020.30	2,687.59	1,893.06	9,835.38	9,369.18	312.22	165,108.23	7
Castine	3,191.46	827.10	4,109.47	3,283.35	15,682.26	7,178.56	45,225.45	158,152.62	12
Charleston	170.03		29.38		2,026.28	820.44	626.52	14,127.08	$\frac{27}{31}$
Cincinnati	4,341.39	727.74	9,637.92	2,366.69	24,622.10	14,171.11	1,387.90	207,591.37	12
Coast Survey vessels						84.10		179,441.92	12
Columbia	2,917.75	1,673.12	5,958.93	5,459.79	28,750.90	14,968.03	11,490.95	263,267.45	*a* 12
Concord	138.06	1,078.91	1,315.59	274.19	1,475.12	735.41	921.07	15,188.80	$1\frac{9}{31}$
Constellation	5,890.00	268.10	994.79	2,686.78		96.78		205,706.70	12
Cushing	966.20	34.58	298.48	691.09	1,430.54		6,440.30	22,765.03	$9\frac{14}{31}$
Detroit	4,727.73	580.21	6,496.17	2,784.16	38,106.54	8,813.39	2,811.70	170,847.49	12
Dolphin	1,586.45	995.97	871.48	1,466.58	8,610.30	27.79	48,901.75	134,406.37	12
Ericsson	79.03	45.97	117.52	68.82	460.83	.78	12 734.09	17,052.61	$2\frac{18}{28}$
Essex	2,206.24	432.99	9,390.42	784.04	2,356.50	6,154.52	61,140.30	171,659.90	12
Fern	898.24	172.83	311.94	574.41	1,757.13	92.87	3,041.71	37,674.57	12
Fish Hawk						3.15		23,104.68	12
Franklin	1,890.60	111.53	616.63	1,059.32	3,619.18	183.27	7,972,29	98,666.86	12
Independence	6,149.92	37.56	364.64	562.72	81.44	180.08	150.08	103,783.47	12
Indiana	6,662.34	2,368.37	28,274.85	6,418.75	23,728.05	10,548.07	25,789.42	323,695.67	12
Iowa						776.51		7,750.49	$\frac{14}{30}$
Katahdin	959.51	517.87	92.91	1,126.84	3,020.57	302.74	6,431.12	47,355.10	$9\frac{17}{31}$
Lancaster	2,847.91	1,084.44	2,553.49	2,690.35	7,675.31	16,128.03		168,164.11	12
Machias	2,550.15	317.18	5.516.94	2,084.45	16,921.10	6,868.47		117,668.35	12
Maine	2,538.81	811.05	9,990.02	5,313.63	16,242.07	13,315.04	35,707.01	262,416.48	12
Marblehead	4,550.42	636.15	4,662.40	2,540.01	18,688.89	10,068.13	12,695.99	164,188.43	12
Marion	5,758.76	315.81	1,356.38	1,312.39	19,649.06	9,556.42	20.96	142,024.35	12
Massachusetts	5,618.84	3,032.72	13,488.24	4,810.88	19,397.15	14,377.28	19,685.37	290,435.86	12
Michigan	1,185.76	915.76	1,986.47	6,23[illegible].04	2,428.29	70.06	3,195.08	82,043.55	12
Minneapolis	4,979.42	1,737.31	4,607.85	6,089.47	33,606.87	20,992.29		298,455.90	12
Monadnock	2,778.57	699.83	7,123.40	2,900.84	24,536.18	5,684.80	9,531.65	150,699.39	12
Monocacy	3,403.59	317.88	596 34	1,953.22	3,567.42	8,177.31		100,929.54	12
Monongahela	3,912.12	109.82	1,185.89	626.27	1,927.74	2,002.18	5,972.71	62,288.53	$3\frac{1}{3}$
Monterey	3,542.95	1,036.64	3,794.05	2,252.71	34,986.58	6,238.02	18,841.92	174,796.68	12
Montgomery	2,625.82	1,803.92	12,752.96	3,805.71	14,167.81	9,943.38	18,978.49	179,214.82	12
Naval Academy vessels	2,014.16	37.27		3,756.72	418.08	17.92		71,301.84	12

Newark	6,039.09	883.29	3,847.19	3,022.91	23,459.65	10,480.19	39,921.57	198,088.98	8 14/31
New York	6,835.21	3,216.58	14,743.70	9,163.05	28,261.26	12,629.62	33,359.68	391,065.69	12
Olympia	2,630.44	2,821.24	21,872.57	5,014.78	64,621.40	20,639.11	351.06	356,889.97	12
Oregon	6,893.55	1,123.43	16,700.01	5,885.92	38,273.70	19,869.64	8,354.59	286,516.25	11 1/2
Petrel	1,159.77	298.19	2,020.53	842.23	6,721.20	2,846.76	4,338.54	55,824.33	6 1/2
Philadelphia	5,539.15	1 132.12	7,887.22	4,032.37	50,618.87	12,309.30	2,850.63	297,577.06	12
Pinta	1,406.90	838.95	236.51	1,369.60	3,603.08	274.47	....	51,566.23	12
Porter	....	....	....	....	719.09	....	931.00	9,388.25	4 17/28
Puritan	1,918.48	401.91	216.84	888.66	5,629.58	3,379.57	1,106.69	75,083.94	6 2/3
Raleigh	2,961.00	606.45	13,572.01	3,177.80	24,431.04	13,857.78	30,244.84	236,711.13	12
Richmond	2,922.13	314.01	68.84	237.55	1,874.47	313.17	20,838.15	92,557.30	12
San Francisco	5,476.88	939.89	5,446.71	4,674.64	18,986.58	15,711.32	....	242,845.48	12
Standish	1,005.56	....	....	132.59	153.66	....	....	3,229.11	1
Terror	1,624.16	657.15	15,827.19	1,805.05	9,067.45	5,102.26	2,116.91	126,561.47	12
Texas	5,509.45	859.35	8,039.58	4,264.59	18,649.16	11,831.87	54,374.70	260,919.37	11 1/3
Thetis	1,761.25	1,700.93	160.62	1,632.19	9,428.85	231.21	5,765.37	90,878.79	12
Vermont	12,920.33	257 98	875.14	2,333.22	586.41	742.79	4,273.75	185,365.91	12
Vesuvius	462.29	316.75	453.14	329.51	3,907.39	1,206.86	10,671.41	39,110.83	5 17/31
Wabash	2,243.73	123.39	572.85	587.53	1,999.74	60.34	....	92,580.70	12
Wilmington	186.00	34.27	935.11	144.85	1 221.84	1,170.54	....	14,771.61	1 17/31
Yantic	3,519.19	376.75	842.03	1,686.17	5,747.31	8,592.78	....	87,977.38	12
Yorktown	2,438.96	1,078.20	3,811.40	3,694.83	29,841.87	7,672.65	2.97	155,435.36	12
Total	189,695.94	45,509.95	284,929.82	147,142.32	808,011.94	389,302.63	696,178.42	8,938,549.71	....

a In reserve at League Island from May 13, 1897.

STATEMENT F.

Statement of payments through the Paymaster-General's Office on contract, open-purchase, and open-contract vouchers during the fiscal year ending June 30, 1897.

Bureau.	Contract.	Open purchase.	Open contract.	Total.
Yards and Docks	$721,387.15	$184,437.57	$76,350.89	$982,175.61
Equipment	471,375.18	330,967.83	36,416.76	838,759.77
Navigation	59,066.88	85,377.40	41,159.62	185,603.90
Ordnance	4,242.929.37	1,402,619.11	100.742.00	5,746,290.48
Construction and Repair	234,068.43	469,303.45	25,221.69	728,593.57
Steam Engineering	115,764.78	296,172.53	7,743.14	419,680.45
Supplies and Accounts	867,830.26	77,384.04	39,083.55	984,297.85
Medicine and Surgery	109,593.24	83,141.74	40,921.96	233,656.94
Secretary's office	7,287,619.45	4,882.52	31,725.19	7,324,227.16
Total	14,109,634.74	2,934,286.19	399,364.80	17,443,285.73

STATEMENT G.

Statement showing the value of supplies on hand July 1, 1896, the receipts from purchase and other sources and the expenditures during the year, and the balance on hand June 30, 1897.

			On hand July 1, 1896, with receipts and expenditures during fiscal year 1897.	Balances on hand June 30, 1897.
Balances on hand:				
Navy-yard, Portsmouth			$753,477.59	$812,567.76
Navy-yard, Boston			1,410,359.24	1,452,013.68
Naval station, Newport			338,364.10	501,949.45
Naval station, New London			10,276.75	10,067.46
Navy-yard, New York			3,204,727.04	4,082.810.57
Navy-yard, League Island			1,549,756.19	1,557,853.61
Naval Academy, Annapolis			119,079.03	114,948.72
Navy-yard, Washington			1,035,872.89	1,143,321.23
Naval Observatory, Washington			32,286.60	31,969.18
Naval Proving Ground			199,217.47	117,410.33
Navy-yard, Norfolk			2,010,459.25	1,878,158.74
Naval station, Port Royal			215.10	7,368.07
Naval station, Key West			37,367.77	45,154.13
Navy-yard, Pensacola			109,575.30	50,168.78
Navy-yard, Mare Island			3,432,147.73	2,482,976.38
Naval station, Puget Sound			26,932.93	25,528.91
Coaling station, Honolulu, Hawaiian Islands			21,216.77	12,387.77
Coaling station, Pechilinque, Mexico			9,714.99	7,809.77
Shipments between navy-yards in transit			326,934.19	385,394.96
Total on hand July 1, 1896			14,627,980.93	
Received during the fiscal year 1897:				
Under Title X—				
From open purchase		$2,663,676.64		
From contracts		3,414,522.07		
From gain by inventory		405,660.43		
From Title Z, manufactured articles		3,279,914.73		
From Titles B and Y, transfers from ships		1,242,415.39		
			11,006,189.26	
Expended during the fiscal year 1897:			25,634,170.19	
To Title A, for use	$195,176.20			
To Title D, for use	391,124.57			
To Title E, for use	173,955.85			
To Title F, for use	125,835.30			
To Title G, for use	677,692.04			
To Title N, for use	87,350.97			
To Title O, for use	56,444.27			
To Title P, for use	2,221.12			
To Title V, for use	74,909.56			
To Title Z, for use	2,923,722.17			
		4,708,442.05		
To Title V, sold to other departments		11,326.98		
To Title W, condemned		397,062.94		
To Title W, revalued		391,560.35		
To Titles B and Y, transfers to ships		5,405,923.37		
			10,914,315.69	
Total on hand June 30, 1897			14,719,854.50	14,719,854.50

STATEMENT H.

Statement of the value of supplies received and expended on board ships in commission for the year ending June 30, 1897.

Bureau.	Balance on hand July 1, 1896.	Receipts.	Total receipts.
Equipment	$1,858,864.37	$1,691,269.86	$3,550,134.23
Ordnance	7,301,509.25	3,514,580.56	10,816,089.81
Construction	1,011,740.09	543,571.94	1,555,312.03
Steam Engineering	467,937.94	961,945.06	1,429,883.00
Supplies and Accounts	422,638.68	1,058,812.32	1,481 451.00
Total	11,062,690.33	7,770,179.74	18,832,870.07

Bureau.	Cost of commission (use and condemned.)	Expended transferred.	Issued to officers crew, and marines, and other sales for cash.	Material transferred to Title A.	Total expenditures.	Balance on hand June 30, 1897.
Equipment	$235,380.37	$997,640.77	....	$73,598.28	$1,286,619.42	$2,263,514.81
Ordnance	284,953.82	952,039.48	....	453,167.90	1,690,161.20	9,125,928.61
Construction	147,142.32	167,712.23	....	....	314,854.55	1,240,457.48
Steam Engineering	831,756.53	91,251.59	....	3,275.98	926,284.10	503,598.90
Supplies and Accounts	391,580.05	223,218.54	$411,444.36	....	1,026,242.95	455,208.05
Total	1,890,813.09	2,411,862.61	411,444.36	530,042.16	5,244,162.22	13,588,707.85

SUMMARY.

Balance on hand July 1, 1896	$11,062,690.83	
Received during year 1896–97	7,770,179.74	
		$18,832,870.07
Expended, cost of commission (use and condemned)	1,890,813.09	
Expended, transferred	2,411,862.61	
Issued to officers, crew, and marines, and other sales for cash	411,444.36	
Material transferred to Title A	530,042.16	
		5,244,162.22
Balance on hand June 30, 1897		13,588,707.85
Value of naval stores in transit from yards and stations to ships		50,840.37
Total value of naval stores on board ships and intransit		13,639,548.22

STATEMENT I.

Statement showing the value of real estate and chattels and machinery plant at the several navy-yards and stations June 30, 1897.

Navy-yards and stations.	Real estate and chattels.	Machinery plant.
Navy-yard, Portsmouth, N. H	$2,844,862.85	$329,252.10
Navy-yard, Boston, Mass	10,908,359.32	1,082,714.30
Naval station, Newport, R. I	690,140.27	104,887.36
Naval station, New London, Conn	128,794.27	6,136.16
Navy-yard, New York, N. Y	14,345,758.15	949,417.25
Navy-yard, League Island, Pa	3,138,377.41	221,998.50
Naval Academy, Annapolis, Md	769,290.49	26,073.24
Navy-yard, Washington, D. C	4,672,267.51	2,430,790.79
Naval Proving Ground, Md	119,621.92	7,511.56
Naval Observatory, Washington, D. C	680,174.97	....
Navy-yard, Norfolk Va	5,980,236.66	582,558.43
Naval station, Port Royal, S. C	661,319.77	892.50
Naval station, Key West, Fla	345,201.16	8,438.12
Navy-yard, Pensacola, Fla	1,885,483.60	45,459.00
Navy-yard, Mare Island, Cal	5,111,127.20	374,461.76
Naval station, Puget Sound, Wash	709,197.64	....
Naval Magazine, Dover, N. J	81,901.90	....
Dry dock, Algiers, La	45,577.93	....
Total	53,177,693.02	6,170,591.07

STATEMENT K.

Statement of public sales and reports of deposits during the fiscal year 1897 on account of sales of Government property.

Date of sale.	Place of sale.	By whom deposited.	Gross receipts.	Expenses of sale.	Net receipts.	Credited to miscellaneous receipts.	Credited to appropriation—	
							Clothing and small-stores fund.	Ordnance material, proceeds of sale.
1896.								
Aug. 10	New York	L. G. Boggs	$1,155.38	$3.75	$1,151.63	$1,151.63		
Aug. 21	do	do	255.00	5.50	249.50	249.50		
Sept. 18	Washington	L. A. Frailey	150.44		150.44	150.44		
Oct. 15	Put in Bay, Ohio	E. D. Ryan	16.00		16.00	16.00		
Nov. 9	Key West, Fla	H. E. Jewett	1,825.00		1,825.00	1,825.00		
Nov. 23	Norfolk, Va	George Cochran	800.00	2.20	797.80	797.80		
Nov. 30	Pensacola, Fla	H. E. Jewett	16,500.00	135.58	16,364.42	16,364.42		
Dec. 29	Erie, Pa	E. D. Ryan	24.75	2.48	22.27	22.27		
1897.								
Feb. 20	New York	L. G. Boggs	895.31	4.75	890.56	890.56		
Feb. 20	do	do	75.00	4.75	70.25	70.25		
Apr. 10	Boston, Mass	G. W. Beaman	1,770.75	28.20	1,742.55	1,742.55		
June 8	Hoboken, N. J	L. G. Boggs	16.00		16.00	16.00		
June 18	Washington	L. A. Frailey	22,337.97	428.95	21,909.02	7.85	$602.21	$21,298.96
June 21	New York	L. G. Boggs	35.00		35.00	35.00		
			45,856.60	616.16	45,240.44	23,339.27	602.21	21,298.96

RECAPITULATION.

New York	$2,415.69
Washington	22,488.41
Boston	1,770.75
Norfolk	800.00
Pensacola	16,500.00
Key West	1,825.00
Put in Bay, Ohio	16.00
Erie, Pa	24.75
Hoboken, N. J	16.00
Gross proceeds	45,856.60
Expenses of sale	616.16
Net proceeds	45,240.44
Deposited to credit:	
Miscellaneous receipts	23,339.27
Clothing and small stores fund	602.21
Ordnance material, proceeds of sale	21,298.96
Total	45,240.44

List of purchasers, with amounts received from each.

Navy-yard, New York, N. Y., August 10, 1896:	
M. Samuel & Son	$1,155.38
Navy-yard, New York, N. Y., August 21, 1896:	
M. H. Gregory	255.00
Navy-yard, Washington, D. C., September 18, 1896:	
J. Dreifus & Co	150.44
Put in Bay, Ohio, October 15, 1896:	
Harry Jones	16.00
Naval station, Key West, Fla., November 9, 1896:	
Wm. Curry's Sons	1,825.00
Navy-yard, Norfolk, Va., November 23, 1896:	
Newport News Shipbuilding and Dry Dock Co	800.00
Navy-yard, Pensacola, Fla., November 30, 1896:	
M. Schwartz	16,500.00
U. S. S. *Michigan*, Erie, Pa., December 29, 1896:	
Martin Quigley	24.75
Navy-yard, New York, N. Y., February 20, 1897:	
T. Bellingham & Co	895.31

List of purchasers, with amounts received from each—Continued.

Navy-yard, New York, N. Y., February 20, 1897:	
Kelleher & Mahoney	$75.00
Navy-yard, Boston, Mass., April 10, 1897:	
Ludlow Manufacturing Co	1,770.75
U. S. S. *Portsmouth*, Hoboken, N. J., June 8, 1897:	
S. L. Brown	16.00
Navy-yard, Washington, D. C., June 18, 1897:	
Salomon Bros	1,667.75
Frank Samuel	3,617.82
Blum Bros	139.00
J. C. Abbey	431.48
J. Dreifus & Co	105.00
Mrs. S. J. Bernheimer	475.00
A. C. Welsh	87.50
S. Bensinger & Co	240.00
H. Wehr & Co	13,552.90
J. J. Mahoney	251.50
Benjamin Einstein	8.00
J. Nuttall	979.02
L. F. Seyfert's Sons	783.00
Total	22,337.97
Navy-yard, New York, N. Y., June 21, 1897:	
William Wandt	35.00

Schedule of proposals for annual supplies for the Naval Home, Philadelphia, under Bureau advertisement dated May 12, 1896; opened June 2, 1896.

Class 1.—Brushes, etc.:	
J. Jacob Shannon & Co	$58.80
Nelms & Co.*	43.15
Chas. J. Field	45.90
Shoemaker & Busch	46.85
Chas. F. McNally	48.35
Class 2.—Building material:	
Paul J. Field	297.40
Walter T. Bradley Co.*	258.65
Class 3.—Cotton waste, etc.:	
Chas. J. Field*	16.46
Class 4.—Clothing:	
Garitee & Son*	5,098.75
John Wanamaker	5,465.00
Class 5.—Boots, shoes, etc.:	
Peter J. Hallahan	1,180.00
L. F. Holland*	1,090.00
Class 6.—Blankets, etc.:	
John Wanamaker*	210.90
Class 7.—Coal:	
Delaware Ice and Coal Co.*	2,695.00
Thomas McConnell	2,975.00
James N. Jennings	2,717.50
Joseph K. Wells	2,889.00
Peale, Peacock & Kerr	2,880.00
Frank F. Mathers	2,720.50
Walter T. Bradley Co	3,210.00
Markman & Hauser	2,864.50
Joseph B. Van Dusen, jr	2,846.00
Class 8.—Wood:	
William H. Fimston & Bro.*	155.00
Thomas McConnell	225.00
Frank F. Mathers	175.00
Joseph B. Van Dusen, jr	166.00
Class 9.—Coal scuttles:	
J. Jacob Shannon & Co	29.82
Chas. J. Field*	19.05
Class 10.—Bedsteads:	
Chas. J. Field*	73.50
Class 11.—Window glass:	
J. Jacob Shannon & Co	26.53
Chas. J. Field*	26.12
Shoemaker & Busch	29.73
Chas. A. Gillingham	27.85
Chas. F. McNally	26.39
Class 12.—Hardware:	
J. Jacob Shannon & Co	388.49
Chas. J. Field*	351.53
Paul J. Field	483.83
Henry F. Chorley	431.86
Class 13.—Lumber:	
Elias Pohl*	1,425.25
R. A. & J. J. Williams	1,657.50
Chas. P. Maul	1,442.50
Class 14.—Paints, etc.:	
James Langmuir	831.55
John Lucas & Co.*	816.25
Smith, Kline & French Co	824.41
Shoemaker & Busch	876.53
Chas. M. Childs & Co	830.21
Class 14.—Paints, etc.—Continued.	
Chas. H. Gillingham	$910.58
Chas. F. McNally	899.68
Class 15.—Provender:	
Wm. Brown	231.50
Paul J. Field	253.70
John B. Daish*	195.00
P. A. Swartz Co	209.80
Class 16.—Groceries:	
William Henry Sharratt	8,977.02
John Scott	9,942.30
Mitchell, Fletcher & Co	8,942.57
E. Bradford Clark Co., limited	9,553.47
Robert McKeown	8,478.03
Theodore H. Doan & Co	9,763.20
William Deering	9,891.90
Edward McLaughlin*	8,310.45
Class 17.—Meats:	
Thomas Bradley	8,305.0
Daniel Snyder & Son*	7,916.5
W. H. Beelford	11,514.0
David Watson	9,699.5
William Poesch	8,375.2
Class 18.—Bread:	
Mitchell F. Fitzpatrick	1,970.00
George Goetz	1,660.00
Robert McKeown*	1,592.50
W. H. Beelford	1,939.50
Class 19.—Tools:	
J. Jacob Shannon & Co	261.29
Charles J. Field*	217.88
Paul J. Field	369.04
Henry F. Chorley	244.40
Class 20.—Ice:	
Delaware Ice and Coal Co.*†	630.00
Knickerbocker Ice Co	630.00
Commercial Ice Co	630.00
Class 21.—Soap, etc.:	
John Scott	521.64
Oliver Parker*	389.91
E. Bradford Clark Co., Limited	438.44
Robt. McKeown	416.74
Shoemaker & Busch	444.32
Theodore H. Doan & Co	447.82
William Deering	546.38
Class 22.—Harness, etc.:	
John Wanamaker*	101.80
Class 23.—Vegetables:	
John E. Fitzgerald	2,762.50
Robert McKeown	5,143.75
G. Freund	3,305.00
Edward McLaughlin*	2,660.00
Class 24.—Sponges, etc.:	
Smith, Kline & French Co.‡	168.75
Shoemaker & Busch*	168.85
Charles F. McNally	187.50
Class 25.—Cream and milk:	
Michael Dougherty*	2,590.00
Henry Doefinger	3,416.00

Schedule of proposals for supplies for the navy-yard, Portsmouth, N. H., under Bureau advertisement dated May 2, 1896; opened June 2, 1896.

Class 1.—Provender:	
W. H. Belford	$1,784.00
Geo. A. Hammond	1,623.50
Ephraim C. Spinney	1,642.00
Class 1.—Provender—Continued.	
John B. Daish*	$1,493.00
Chas. E. Langton	1,605.20
Augustus Stevenson	1,535.00

Schedule of proposals for supplies for the navy-yard, Boston, Mass., under Bureau advertisement dated May 2, 1896; opened June 2, 1896.

Class 1.—45,000 pounds fresh beef and vegetables:	
Chas. A. Simonds*	$0.08 .02
W. H. Belford*	$.10\frac{1}{4}$ $.02\frac{1}{4}$
Class 2.—30,000 pounds fresh bread:	
Geo. H. Sanderson*	$.03\frac{45}{100}$
Jno. Mullett & Co	$.03\frac{45}{100}$
W. H. Belford	$.04\frac{1}{4}$
Class 3.—3,000 pounds ice:	
Drivers Union Ice Company	$\$0.003\frac{4}{10}$
Chas. A. Simonds	.005
Boston Ice Company*	$.002\frac{8}{10}$
W. H. Belford	$.00\frac{41}{100}$
Class 4.—Provender:	
Chas. A. Simonds	1,281.00
John Mullett & Co	1,314.00
John B. Daish*	1,179 10
W. H. Belford	1,428.25

* Accepted. † Tie bid. ‡ Informal.

Schedule of proposals for supplies for the naval station, Newport, R. I., under Bureau advertisement dated May 2, 1896; opened June 2, 1896.

Class 1.—40,000 pounds fresh beef and vegetables:	
P. Buckley & Son	$0.05½ .01¼
John P. Reagan*	.05 .01¼
W. H. Belford	.09½ .01 1/10
Michael E. Keefe	.06 .02
Class 2.—30,000 pounds fresh bread:	
John T. Reagan	$0.03¼
W. H. Belford*	.03 41/100
Class 3.—200,000 gallons fresh water:	
Michael E. Keefe†	.00 75/100
Class 4.—Provender:	
John B. Daish	1,062.00
Dennis Shannahan	927.58
Chas. E. Spooner*	872.50
W. H. Belford	1,114.25

Schedule of proposals for supplies for the naval station, New London, Conn., under Bureau advertisement dated May 2, 1896; opened June 2, 1896.

Class 1.—11,500 pounds fresh beef and vegetables:	
Chas. H. Kluick*	$0.09¼ .03
W. H. Belford	.12¼ .03¼
Class 2.—9,200 pounds fresh bread:	
John O'Hay*	$0.03¼
W. H. Belford	.05¼
Class 3.—Provender:	
Arnold Rudd	307.94
John B. Daish*	269.75
W. H. Belford	350.75

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated May 2, 1896; opened June 2, 1896.

Class 1.—165,000 pounds fresh beef and vegetables:	
Armour & Co	$0.06 38/100 .01 35/100
W. H. Belford	.07¾ .01¼
Andrew Koch	.07¼ .02
P. J. Morrisson	.05 71/100 .00 8/10
W. H. Evans	.05 35/100 .01 34/100
Wm. H. Cloonan*	.05 38/100 .00 97/100
Class 2.—150,000 pounds fresh bread:	
W. H. Belford	.02 88/100
Andrew Koch	.02 8/10
Class 2.—150,000 pounds fresh bread—Continued.	
Anton Behlen*	$0.02 4/10
P. J. Morrisson	.03
Class 3.—120,000 pounds ice:	
Knickerbocker Ice Co.*	.22¼
W. H. Belford	.24
Andrew Koch	.35
Brooklyn Hygienic Ice Co	.25
Class 4.—Provender for navy-yard:	
W. H. Belford*	2,181.75
John B. Daish	2,344.00
Andrew Koch	2,593.62
Chas. L. Richerson	2,296.00
John Noonan	2,416.50
Class 5.—Provender for Dover, N. J.:	
John B. Daish*	472.80
John Noonan	484.00

Schedule of proposals for supplies for the navy-yard, League Island, Pa., under Bureau advertisement dated May 2, 1896; opened June 2, 1896.

Class 1.—6,000 pounds fresh beef and vegetables:	
Terrence Brady	$0.10¼ .02¼
P. J. Morrisson	.12¼ .03¼
W. H. Belford	.11¼ .03¼
Wm. Poesch*	.10 .02¼
Class 2.—4,500 pounds fresh bread:	
W. H. Belford*	.02 97/100
Estate of John G. Kolb	.04¼
Class 3:	
Knickerbocker Ice Co.*‡	$0.004
Delaware Ice and Coal Co	.004
W. H. Belford	.004
Class 4.—Provender for navy-yard:	
P. A. Swartz Co.*	940.92
John B. Daish	962.72
W. H. Belford	1,124.26
Wm. Brown	960.14
Class 5.—Provender for Fort Mifflin:	
P. A. Swartz Co	237.86
John B. Daish*	198.92
Wm. Brown	225.12

Schedule of proposals for supplies for the Naval Academy, Annapolis, Md., under Bureau advertisement dated May 2, 1896; opened June 2, 1896.

Class 1.—5,000 pounds fresh beef and vegetables:	
Wm. J. Brewer*	$0.08 .03
Henry F. Basil	.07 .06
Class 2.—4,000 pounds fresh bread:	
Martin M. Smith*	.04
Class 3.—20,000 pounds ice:	
John B. Flood	$0.00 11/12
Joseph S. M. Basil*	.00 4/10
Class 4.—Provender:	
Joseph S. M. Basil*	687.00
John B. Daish	776.00
Henry B. Myers	723.50

* Accepted. † No award. ‡ Tie bid.

Schedule of proposals for supplies for the navy-yard, Washington, D. C., under Bureau advertisement dated May 2, 1896; opened June 2, 1896.

Class 1.—100,000 pounds ice:	
Great Falls Ice Co.*	$0.003
Independent Ice Co	.003$\frac{15}{100}$
Class 2.—Provender:	
John B. Daish*	$1,229.30
W. M. Galt & Co	1,230.70

Schedule of proposals for supplies for the navy-yard, Norfolk, Va., under Bureau advertisement dated May 2, 1896; opened June 2, 1896.

Class 1.—50,000 pounds fresh beef and vegetables:	
John A. Codd	$0.06 .02
D. S. Baum	.04$\frac{74}{100}$ .01$\frac{1}{10}$
Sam'l Westheimer	.05$\frac{62}{100}$ .02
Louis Wasserman	.06 .01$\frac{1}{2}$
Aaron Marx*	.04 .01
Sam'l Marx	.04$\frac{85}{100}$ .01$\frac{7}{10}$
W. H. Belford	.09 .02
Class 2.—50,000 pounds fresh bread:	
F. Reiger	0.02\frac{45}{100}$
W. H. Belford	.04$\frac{1}{4}$
J. D. Cabler*	.02$\frac{38}{100}$
Class 3.—100,000 pounds ice:	
Patrick J. Lyons	.005
Geo. W. Whitehurst*	.004$\frac{1}{4}$
Louis Wasserman	.004$\frac{9}{10}$
Class 4.—Provender:	
O. L. Williams	1,300.50
Lindsay & Co	1,296.02
John B. Daish	1,329.50
J. S. Miller	1,392.28
Thos. J. Barlow	1,483.90
W. H. Belford	1,646.50
F. L. Grandy*	1,141.40

Schedule of proposals for supplies for the navy-yard, Pensacola, Fla., under Bureau advertisement dated May 2, 1896; opened June 2, 1896.

Class 1.—3,000 pounds fresh beef and vegetables:	
Fred. Bauer	$0.11 .03$\frac{1}{2}$
John S. Bell*	.09$\frac{1}{2}$ .03$\frac{1}{2}$
Class 2.—2,000 pounds fresh bread:	
Moses White*†	0.04\frac{1}{2}$
John Bell	.05
Fred. Bauer	.04$\frac{1}{2}$
Class 3.—Provender:	
Fred. Bauer	700.25
John B. Daish*	687.75

Schedule of proposals for supplies for the navy-yard, Mare Island, Cal., under Bureau advertisement dated May 2, 1896; opened June 2, 1896.

Class 1.—100,000 pounds fresh beef and vegetables:	
Hammond & Brod	0.05\frac{72}{100}$ .01
Samuel Brown	.05$\frac{1}{2}$ .01
Mark Straus*	.05$\frac{34}{100}$ .01
Class 2.—100,000 pounds fresh bread:	
James Smith	.03
H. Massone & Co.*	.02$\frac{1}{2}$
Joseph Bass	.02$\frac{3}{10}$
Class 3.—100,000 pounds navy biscuit:	
George H. Garthorne	.04$\frac{85}{100}$
Class 3.—Continued.	
T. E. Chadborne	0.04\frac{38}{100}$
American Biscuit Co.*	.04$\frac{33}{100}$
Class 4.—25,000 pounds ice:	
Henry Connally*	.01$\frac{333}{1000}$
O. C. Smith	.01$\frac{14}{100}$
Class 5.—Provender:	
Robert Gore	2,890.25
Louis E. Lake	3,189.00
Corcoran & Collins	3,265.60
John A. McGrane*	2,771.00
James Brownlie	3,483.12
M. L. Kelly	3,312.50

Schedule of proposals for supplies for the Mare Island Navy-Yard, under Bureau advertisement dated May 7, 1896; opened June 9, 1896.

Class 1.—Bolts, etc.:	
Wakefield Baker	$120.03
Dunham, Carrigan & Hayden Co	130.61
General Equipment and Engineering Co	152.92
George P. Hawley*	117.25
Miller, Sloss & Scott	137.34
Class 2.—Brushes:	
W. P. Fuller & Co.*	108.90
Miller, Sloss & Scott	132.24
Class 3.—Tibbels cement:	
Manhattan Supply Co	120.00
Dunham, Carrigan & Hayden Co	120.00
Miller, Sloss & Scott*	119.50
Class 4.—Hardware:	
Wakefield Baker*	410.90
Dunham, Carrigan & Hayden Co	569.42
General Equipment and Engineering Co	660.48
Geo. P. Hawley	498.20
Miller, Sloss & Scott	517.29
Class 5.—Padlocks:	
Wakefield Baker	216.00
Francis Harral	190.80
Class 5.—Padlocks—Continued.	
Dunham, Carrigan & Hayden Co	$166.80
General Equipment and Engineering Co	960.00
Geo. P. Hawley*	153.60
Miller, Sloss & Scott	284.16
Class 6.—Screws:	
Wakefield Baker	267.29
Dunham, Carrigan & Hayden Co	285.57
General Equipment and Engineering Co	354.81
Geo. P. Hawley	291.57
Brooklyn Hardware and Sporting Goods Co.*	244.04
Miller, Sloss & Scott	274.09
Class 7.—Leather:	
A. C. Nichols & Co.*	314.65
S. C. Forsaith Machine Co	382.22
Miller, Sloss & Scott	382.15
Class 8.—Emery cloth:	
E. J. Brooks & Co	224.81
Wakefield Baker	228.87
Francis Harral	230.95
Dunham, Carrigan & Hayden Co	218.20

* Accepted.

† Tie bid.

Schedule of proposals for supplies for the Mare Island Navy-Yard, under Bureau advertisement dated May 7, 1896; opened June 9, 1896—Continued.

Class 8.—Emery cloth—Continued.	
General Equipment and Engineering Co.*	$135.89
Geo. P. Hawley	223.00
Miller, Sloss & Scott	250.39
Class 9.—Oregon pine:	
A. S. Carman*	4,879.00
Wm. H. Leahy	5,480.80
J. H. Powell	5,336.50
Wm. Walker	5,613.50
Class 10.—Blocks:	
General Equipment and Engineering Co	200.00
Miller, Sloss & Scott*	145.00
Class 11.—Bolts:	
Miller, Sloss & Scott*	$239.31
Class 12.—Air-port glasses, etc.:	
Miller, Sloss & Scott*	472.00
Class 13.—Hardware:	
General Equipment and Engineering Co	545.18
Miller, Sloss & Scott*	463.19
Class 14.—Rubber gaskets:	
Miller, Sloss & Scott*	84.50
Class 15.—Valves:	
Miller, Sloss & Scott*	189.30
Class 16.—Ship chandlery:	
Miller, Sloss & Scott*	825.21

Schedule of proposals for stationery for the New York Navy-Yard, under Bureau advertisement dated May 21, 1896; opened June 16, 1896.

Class 1.—Note paper, etc.:	
Arthur Mountain & Co.*	$1,929.20
W. L. Bilisoly	2,146.60
Class 2.—Typewriter paper:	
Arthur Mountain & Co.*	718.94
W. L. Bilisoly	986.50
Class 3.—Paper, miscellaneous:	
Manhattan Supply Co	668.20
Arthur Mountain & Co	671.20
W. L. Bilisoly*	667.80
Class 4.—Memorandum books, etc.:	
Manhattan Supply Co	1,329.00
Arthur Mountain & Co.*	1,031.52
W. L. Bilisoly	1,066.23
Class 5.—Pens:	
D. A. Tower*	355.56
Manhattan Supply Co	371.40
Arthur Mountain & Co	402.12
Class 5.—Pens—Continued.	
W. L. Bilisoly	$397.44
Class 6.—Erasers, pencils, etc.:	
D. A. Tower*	620.28
Manhattan Supply Co	635.07
Arthur Mountain & Co	704.56
W. L. Bilisoly	647.83
Class 7.—Inks and mucilage:	
D. A. Tower*	669.96
Manhattan Supply Co	719.10
Class 8.—Rubber bands:	
Manhattan Supply Co.*	125.74
Arthur Mountain & Co	165.90
Class 9.—Miscellaneous stationery:	
D. A. Tower*	753.16
Manhattan Supply Co	794.31
W. L. Bilisoly	982.66

Schedule of proposals for stationery for the navy-yard, Washington, D. C., under Bureau advertisement dated May 20, 1896; opened June 16, 1896.

Class 1.—Note paper, etc.:	
R. Carter Ballantyne	$1,115.65
W. L. Bilisoly	1,093.00
Arthur Mountain & Co.*	920.25
Class 2.—Typewriter paper, etc.:	
R. Carter Ballantyne	199.61
W. L. Bilisoly	237.15
Arthur Mountain & Co.*	190.03
Class 3.—Miscellaneous paper:	
Easton & Rupp	167.60
R. Carter Ballantyne	168.70
W. L. Bilisoly*	158.60
Arthur Mountain & Co	171.50
Manhattan Supply Co	164.50
Class 4.—Memorandum books, etc.:	
Easton & Rupp	642.56
R. Carter Ballantyne	517.56
W. L. Bilisoly	528.21
Arthur Mountain & Co.*	498.20
Manhattan Supply Co	606.84
Class 5.—Pens:	
Easton & Rupp	186.08
Class 5.—Pens—Continued.	
R. Carter Ballantyne	$171.90
W. L. Bilisoly*	168.06
Arthur Mountain & Co	170.96
Manhattan Supply Co	173.00
Class 6.—Erasers, pencils, etc.:	
Easton & Rupp	297.84
R. Carter Ballantyne*	268.46
W. L. Bilisoly	296.40
Arthur Mountain & Co	284.76
Manhattan Supply Co	276.42
Class 7.—Inks and mucilage:	
Easton & Rupp	288.90
R. Carter Ballantyne	286.94
W. L. Bilisoly	291.96
Manhattan Supply Co.*	273.78
Class 8.—Miscellaneous stationery:	
R. Carter Ballantyne*	572.07
W. L. Billisoly	608.98
Manhattan Supply Co	579.82

Schedule of proposals for stationery for the Mare Island Navy-Yard, under Bureau advertisement dated May 16, 1896; opened June 16, 1896.

Class 1.—Note paper, etc.:	
Payot, Upham & Co	$650.00
Dutton & Partridge	704.00
Cunningham, Curtis & Welch	834.00
Arthur Mountain & Co.*	499.10
Bonestell & Co	(†)
Class 2.—Typewriter paper, etc.:	
Payot, Upham & Co	416.10
Dutton & Partridge	456.92
Cunningham, Curtis & Welch	505.28
Arthur Mountain & Co.*	324.25
Bonestell & Co	(†)
Class 3.—Paper, miscellaneous:	
H. S. Crocker & Co.*	42.46
Class 3.—Paper, miscellaneous—Con.	
Payot, Upham & Co	$60.00
Dutton & Partridge	52.50
Cunningham, Curtis & Welch	44.90
Manhattan Supply Co	49.20
Arthur Mountain & Co	52.00
Bonestell & Co	45.90
Class 4.—Memorandum books, etc.:	
H. S. Crocker & Co	511.15
Payot, Upham & Co	498.12
Dutton & Partridge	582.95
Cunningham, Curtis & Welch	602.20
Manhattan Supply Co	646.55
Arthur Mountain & Co.*	413.35

* Accepted. † Informal.

Schedule of proposals for stationery for the Mare Island Navy-Yard, under Bureau advertisement dated May 16, 1896; opened June 16, 1896—Continued.

Class 5.—Pens:	
H. S. Crocker & Co.*	$101.49
Payot, Upham & Co	101.91
Class 5.—Pens—Continued.	
Dutton & Partridge	121.80
Cunningham, Curtis & Welch	106.20
Manhattan Supply Co	102.36
Arthur Mountain & Co	107.43
Class 6.—Erasers, pencils, etc.:	
H. S. Crocker & Co	133.24
Payot, Upham & Co	121.51
Dutton & Partridge	141.98
Cunningham, Curtis & Welch	134.86
Manhattan Supply Co.*	118.12
Arthur Mountain & Co	146.85
Class 7.—Inks and mucilage:	
Payot, Upham & Co	$207.22
Dutton & Partridge	189.82
Cunningham, Curtis & Welch	222.78
Arthur Mountain & Co.*	168.86
Class 8.—Rubber bands:	
Payot, Upham & Co	34.70
Dutton & Partridge	36.65
Cunningham, Curtis & Welch	30.72
Manhattan Supply Co.*	29.05
Arthur Mountain & Co	40.35
Class 9.—Miscellaneous stationery:	
Payot, Upham & Co	(†)
Dutton & Partridge	293.51
Cunningham, Curtis & Welch	293.30
Manhattan Supply Co.*	270.10

Schedule of proposals for supplies for the navy-yard, Washington, D. C., under Bureau advertisement dated June 1, 1896; opened June 20, 1896.

Class 1.—Blue process paper:	
Weill & Taws	$1,050.00
Manhattan Supply Co	1,546.80
Mackey Print Paper Co*	858.00
Keuffel & Esser Co	885.00
Class 1.—Blue process paper—Cont'd.	
Thomas H. McCollin & Co	$904.00
R. Carter Ballantyne	985.00
Geo. L. Neville	1,150.16

Schedule of proposals for coal for the New York and Norfolk navy-yards under Bureau advertisement dated June 4, 1896; opened June 30, 1896.

Class 1.—10,000 tons bituminous coal for New York:	
Percy Heilner	$25,500.00
Dunham & Scott	27,000.00
Peale, Peacock & Kerr	27,000.00
Clearfield Bituminous Coal Corporation	27,000.00
Morrisdale Coal Co	27,000.00
Loyalhanna Coal and Coke Co	27,000.00
Berwind White Coal Mining Co*	27,000.00
Davis Coal and Coke Co	27,000.00 29,000.00
C. B. Orcutt	29,000.00
Class 1.—10,000 tons bituminous coal for New York—Continued.	
David Duncan & Sons	$25,800.00
Class 2.—5,000 tons bituminous coal for Norfolk:	
William Lamb*	13,750.00
Davis Coal and Coke Co	16,750.00
Geo. W. Taylor & Co	13,750.00
Class 3.—5,000 tons bituminous coal for Newport News:	
Davis Coal and Coke Co	17,500.00
J. W. Hopkins*	13,750.00

Schedule of proposals for supplies for the Boston Navy-Yard, under Bureau advertisement dated June 3, 1896; opened June 20, 1896.

Class 1.—Jute twine:	
O'Jaffe & Pinkus	$247.50
Manhattan Supply Co	224.00
Frank W. McNeal	202.50
Cavanagh Bros. & Knapp	210.00
John T. Namath*	202.50
Geo. L. Neville	260.00
O'Jaffe & Pinkus	1,890.00
Class 2.—Flax twine:	
Manhattan Supply Co	$1,614.40
General Equipment and Engineering Co	1,740.00
Smith Dove Manufacturing Co	1,740.00
Cavanagh Bros. & Knapp	1,635.60
John P. Namath*	1,560.00
Class 3.—Cotton twine:	
Manhattan Supply Co	196.80
Frank McNeal	210.00
General Equipment and Engineering Co.*	180.00
Chas. H. Pleasants	216.00
Cavanagh Bros. & Knapp	190.80
Jno. P. Nawrath	207.00
Geo. L. Neville	206.00
Class 4.—Machine brushes:	
Manhattan Supply Co.*	56.40
Class 5.—Galvanized steel wire:	
Manhattan Supply Co	3,244.50
Trenton Iron Co.*	3,194.37
Frank W. McNeal	3,634.50
General Equipment and Engineering Co	3,374.50
Chas. H. Pleasants	3,375.60
Geo. L. Neville	3,377.50
Class 6.—Burlap:	
O'Jaffe & Pinkus*	261.88
Manhattan Supply Co	279.50
Frank W. McNeal	293.75
General Equipment and Engineering Co	329.15
Class 6.—Burlap—Continued.	
Geo. L. Neville	$366.25
Class 7.—Tar:	
General Equipment and Engineering Co	424.50
Chas. H. Pleasants	400.00
S. C. Forsaith Machine Co.*	396.00
Geo. L. Neville	447.50
Class 8.—Whale oil:	
Frank W. McNeal	1,410.00
General Equipment and Engineering Co	1,289.70
S. C. Forsaith Machine Co	1,290.00
Manhattan Oil Co	1,230.00
Alden Speare's Son & Co	1,290.00
Swan & Finch Co.*	1,200.00
Class 9.—Steam pipe:	
Manhattan Supply Co	8.00
General Equipment and Engineering Co	10.55
S. C. Forsaith Machine Co.*	4.00
Class 10.—Rubber grommets:	
Manhattan Supply Co.‡	24.00
Frank W. McNeal	4.80
Class 11.—200 tons charcoal iron:	
Frank H. Woodruff	19,600.00
Brown & Co., Incorporated	22,400.00
Monongabela Iron and Steel Co.*	12,860.00
Lebanon Iron Co	15,680.00
Class 12.—Galvanized steel wire:	
Manhattan Supply Co	1,413.50
Trenton Iron Co.*	1,400.00
Frank W. McNeal	1,590.50
Washburn and Moen Manufacturing Co	1,440.00
General Equipment and Engineering Co	1,484.10
Geo. L. Neville	1,485.00

* Accepted. † Informal. ‡ No award.

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated June 2, 1896; opened June 20, 1896.

Class 1.—50,000 yards unbleached drill:	
Manhattan Supply Co	$4,490.00
Jno. H. Tissot, jr	4,875.00
Thos. G. Hood*	4,075.00
Class 2.—10,000 mattress covers:	
Manhattan Supply Co	5,170.00
Thos. M. Farley*	4,783.00
Louis Wechsler	4,825.00
O'Jaffe & Pinkus	4,887.50
William F. Bernstein	5,494.00
Class 3.—10,000 dozen rubber buttons (small):	
Manhattan Supply Co	340.00
Wm. H. Horstman Co	325.00
India Rubber Comb Co	337.50
John H. Tissot, jr	330.00
Thos. G. Hood*	314.00
Thos. Kelly	324.00
Class 4.—Worsted tape:	
Manhattan Supply Co.*	285.00
Wm. H. Horstman Co	562.50
Class 5.—40,000 pounds butter:	
Lloyd I. Seaman*	9,200.00
Frank J. Dessoir	9,400.00
Simpson, McIntire & Co	10,000.00
Alex. A. Ahrens	10,400.00
James F. Oyster	10,400.00
Class 6.—25,000 pounds navy biscuit:	
Robt. W. Steel	1,187.50
Treadwell & Harris Baking Co*	1,022.50
Frank J. Dessoir	1,250 00
Class 7.—150,000 pounds green coffee:	
Geo. L. Hartford*	25,485.00
C. J. Caughy	25,755.00
Thos. J. O'Donohue	27.750.00
Frank J. Dessoir	(†)
Thomas Reid	28,312.50
John J. O'Rorke	25,545.00
Class 8.—10,000 pounds tea:	
C. J. Caughy	2,970.00
E. F. Cumming	1,946.00
Thos. J. O'Donohue	3,500.00
Frank J. Dessoir	(†)
Frank W. McNeal	3,000.00
Thomas Reid	3,700.00
Jno. J. O'Rorke	2,129.00
Class 9.—100,000 pounds sugar:	
C. J. Caughy* ‡	5,037.00
Frank J. Dessoir	5,037.00
Alex. A. Ahrens	5,088.00
John J. O'Rorke	5,037.00
Class 10.—White twill:	
Manhattan Supply Co	335.00
John H. Tissot, jr.*	300.00
Estate of Henry Offerman	425.00
Thomas Kelly	374.00
Class 11.—Wire grommets:	
Manhattan Supply Co	238.20
Wm. H. Horstman Co.*	216.00
O. Falk & Co	217.50
Class 12.—5,000 coal baskets:	
Manhattan Supply Co.*	2,420.00
E. B. Thurber	2,625.00
John H. Tissot, jr	2,700.00
S. C. Forsaith Machine Co	2,662.50
Frank J. Dessoir	2,737.50
Francis Harral	2,550.00
Cavanagh Bros. & Knapp	2,550.00
Frank W. McNeal	2,700.00
Class 13.—Bunting:	
E. B. Thurber	13,289.60
John H. Tissot, jr	10,886.40
Walter H. McDaniels*	6,405.28
Class 14.—Sewing cotton:	
Manhattan Supply Co	109.05
Thos. Kelly*	101.37
Class 15.—Muslin:	
Manhattan Supply Co.*	107.68
E. B. Thurber	112.00
Estate of Henry Offerman	108.00
Class 16.—Flax ravens:	
Manhattan Supply Co	88.32
E. B. Thurber	100.80
Cavanagh Bros. & Knapp*	72.00
Frank W. McNeal	110.40
Class 17.—Toggles, etc.:	
Chas. A. Moore*	$308.80
Manhattan Supply Co	327.20
E. B. Thurber	315.20
Frank W. McNeal	344.00
Class 18.—Rheostats, etc.:	
Machado and Raller	230.10
Western Electric Co.*	192.15
Class 19.—Tools:	
Francis Harral*	544.77
Class 20.—1 vertical miller:	
Manhattan Supply Co	623.00
The Garvin Machine Co.*	500.00
Walter L. Clark	510.00
P. P. Bowles	875.00
Francis Harral	519.25
General Equipment and Engineering Co	963.00
Class 21.—1 lever and screw feed lathe:	
Manhattan Supply Co	117.40
The Garvin Machine Co	107.00
Jno. H. Tissot, jr.*	106.00
Walter L. Clark	120.00
P. P. Bowles	108.75
Francis Harral	175.50
General Equipment and Engineering Co	133.75
Class 22.—1 double-spindle lathe:	
Jno. H. Tissot. jr	905.00
James J. McCabe*	895.00
Class 23.—1 engine lathe:	
Manhattan Supply Co	458.40
The Garvin Machine Co	375.00
Walter L. Clark*	370.00
P. P. Bowles	373.75
General Equipment and Engineering Co	428.00
Class 24.—1 band saw:	
Manhattan Supply Co	173.90
The Garvin Machine Co.*	125.00
John H. Tissot, jr	199.00
Walter L. Clark	205.00
P. P. Bowles	207.75
Francis Harral	213.50
Class 25.—Analytical balance:	
Manhattan Supply Co	134.40
John H. Tissot, jr.*	99.50
Western Electric Co	125.00
General Equipment and Engineering Co	123.00
Class 26.—Storage batteries:	
Western Electric Co.*	1,830.30
Class 27.—Switches, fuses, etc.:	
Machado & Raller	93.55
Electro Dynamic Co	96.00
Western Electric Co.*	63.45
Class 28.—Ammeter and voltmeter:	
Western Electric Co.*	135.00
Class 29.—Wire:	
Manhattan Supply Co	199.00
General Electric Co	199.25
Western Electric Co	154.50
General Equipment and Engineering Co.*	115.00
Class 30.—1 set grate bars:	
Chas. A. Moore*	65.84
General Equipment and Engineering Co	68.75
Class 31.—1 screw and screw-feed lathe:	
Manhattan Supply Co	98.40
The Garvin Machine Co.*	87.00
John H. Tissot, jr	88.20
P. P. Bowles	88.75
Francis Harral	145.75
General Equipment and Engineering Co	104.98
Class 32.—Files:	
Chas. A. Moore	33.88
John H. Tissot, jr	47.10
Brooklyn Hardware and Sporting Goods Co	48.22
P. P. Bowles	44.71
Jas. Reilly Repair and Supply Co	47.07
General Equipment and Engineering Co.*	31.09

* Accepted. † Informal. ‡ Tie bid.

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated June 2, 1896; opened June 20, 1896—Continued.

Class 33.—1 dynamo:	
Machado & Raller*	$1,111.00
Electro Dynamic Co	1,165.00
General Electric Co	1,198.00
Western Electric Co	1,451.00
Frank H. Clark	1,279.00
Class 34.—Yellow-pine decking:	
Watson & Pittinger	7,542.50
Chas. E. Pell	8,670.00
C. F. Hoddson Co.*	4,969.00
Geo. L. Neville	13,200.00
Class 35.—Hard-rubber tubing:	
Manhattan Supply Co	140.00
India Rubber Comb Co	139.00
Francis Harral*	111.00
Frank W. McNeal	162.50
Class 36.—Steel-wire rope:	
Manhattan Supply Co	$33.50
Frank W. McNeal*	29.50
Class 37.—Soft-rubber glands:	
Western Electric Co.*	236.45
Class 38.—Battery-bell wire:	
John H. Tissot, jr	99.00
General Electric Co	92.50
Western Electric Co.*	84.00
Class 39.—25,000 yards bleached cotton drill:	
Manhattan Supply Co	3,175.00
John H. Tissot, jr.*	2,687.50
Estate of Henry Offerman	3,125.00

Schedule of proposals for supplies for the Boston Navy-Yard, under Bureau advertisement dated June 8, 1896; opened June 23, 1896.

Class 1:	
Robt. B. Storer & Co	$8,885.00
A. Davis Weld*	8,725.00
Class 2:	
W. B. Nelson	10,220.00
David S. Gay	10,500.00
Class 2—continued.	
W. J. Loughridge	$10,192.00
A. Davis Weld*	10,080.00
Class 3:	
Manhattan Supply Co	25,185.00
A. Davis Weld*	24,000.00

Schedule of proposals for supplies for the navy-yard, Norfolk, Va., under Bureau advertisement dated June 17, 1896; opened July 7, 1896.

Class 1.—Yellow pine:	
Chas. S. Conner*	$680.00
Duke & Smith	750.00
Geo. L. Neville	714.00
W. C. Cooke	800.00
Class 1.—Yellow pine:	
Geo. L. Neville	$952.80
Class 2.—White pine:	
Geo. L. Neville†	2,610.00

Schedule of proposals for supplies for the navy-yard, Washington, D. C., under Bureau advertisement dated June 18, 1896; opened July 7, 1896.

Class 1.—Bolts:	
General Equipment and Engineering Co	$77.03
W. H. Pate	62.55
J. H. Chesley & Co	64.83
Manhattan Supply Co	75.27
E. B. Thurber	77.34
J. H. Sternbergh*	54.43
Frank W. McNeal	86.64
J. B. Kendall	62.27
Geo. L. Neville	63.89
Class 2.—Cement:	
J. T. Walker Sons	854.56
Jas. H. McGill*	776.16
Geo. L. Neville	980.00
Class 3.—Sand and broken stone:	
W. A. Pate	1,077.76
J. B. Kendall	1,116.64
J. T. Walker Sons	1,278.08
Wayne Smith*	767.10
Geo. L. Neville	1,894.40
Class 4.—Glass lights:	
General Equipment and Engineering Co.*	59.43
W. H. Pate	63.00
E. B. Thurber	73.50
J. B. Kendall	69.65
Class 5.—Hardware:	
General Equipment and Engineering Co	197.64
W. A. Pate	167.83
J. H. Chesley & Co	164.08
F. P. May & Co	153.92
Manhattan Supply Co	196.17
Jas. Reilly Repair and Supply Co	161.32
Class 6.—Lumber:	
W. T. Galliher & Bro	6,490.73
Grayson & Cain	6,727.99
Reilly & Walker*	6,436.06
Nathan B. Gaskill	7,515.58
Class 6.—Lumber—Continued.	
Duke & Smith	$8,241.28
Geo. L. Neville	7,860.89
Class 7.—Lumber:	
W. T. Galliher & Bro	425.14
Grayson & Crain	477.71
Reilly & Walker*	6,436.06
Nathan B. Gaskill	7,515.58
Duke & Smith	8,241.28
Geo. L. Neville	615.40
Class 8.—Piles:	
Reilly & Walker	168.00
Nathan B. Gaskill	280.00
Thomas Kelly	315.00
D. C. Alexander*	152.60
Geo. L. Neville	336.00
Class 9.—Roofing slate:	
John Galt & Sons	3,480.40
S. C. Forsaith Machine Co	3,518.15
E. B. Thurber	3,674.02
J. B. Kendall	3,467.88
J. T. Walker & Sons	3,371.55
James H. McGill	3,246.32
Slatington Slate Co	3,371.55
Consolidated Lehigh Slate Co.*	2,949.62
Class 10, Roofing felt:	
W. A. Pate	476.58
John Galt & Sons	458.25
J. H. Chesley & Co	468.12
F. P. May & Co	420.18
Manhattan Supply Co	470.94
E. B. Thurber	479.40
J. B. Kendall	437.10
Fiske Bros. Refining Co	470.94
J. T. Walker & Sons	493.50
Jas. Reilly Repair and Supply Co.*	317.25
Jas. H. McGill	465.30
Addison H. Clark	493.50
Geo. L. Neville	465.30

*Accepted. †No award.

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated June 16, 1896; opened July 7, 1896.

Class 1.—Boiler tubes:	
Allison Manufacturing Co	$41,858.17
Tyler Tube and Pipe Co.*	29,892.10
Morris Tasker & Co	32,818.00
Pancoast & Rogers	38,685.60
Cornell, Underhill & Boyd	39,060.52
Class 2.—Boiler tubes:	
Manhattan Supply Co	2,286.50
Allison Manufacturing Co	2,402.10
Tyler Tube and Pipe Co.*	1,819.00
Morris Tasker & Co	2,040.00
Frank H. Woodruff	3,363.00
Pancoast & Rogers	2,074.00
Cornell, Underhill & Boyd	2,320.50
Class 3.—Nickel steel deck plating:	
Carbon Steel Co.*	8,800.00
Bethlehem Iron Co	14,784.00
Carnegie Steel Co., Limited	12,320.00
Class 4.—Steel plates:	
Carbon Steel Co.*	6,000.00
Bethlehem Iron Co	10,080.00
Frank H. Woodruff	6,870.00
Carnegie Steel Co., Limited	6,720.00
Class 5.—Angle bars:	
Frank H. Woodruff*	2,808.00
Carnegie Steel Co., Limited	6,720.00
Class 6.—Steel-rivet rod:	
Park Bro. & Co., Limited	$1,056.00
Frank H. Woodruff	1,315.20
J. H. Sternbergh	1,194.00
Benjamin Atha & Illingworth Co.	1,075.20
Carnegie Steel Co., Limited*	940.80
Class 7.—Lumber:	
Chas. E. Pell	240.00
Watson & Pittinger	198.00
E. L. Richardson*	165.00
Class 8.—Lumber: †	
Chas. E. Pell	792.00
Watson & Pittinger	831.60
E. L. Richardson	792.00
Class 9.—Lumber:	
Chas. E. Pell	825.00
Watson & Pittinger	560.00
E. L. Richardson*	402.00
Class 10.—Lumber:	
Frank W. McNeal — Bid A	1,570.06
Bid B	1,478.56
Lord & Taylor*	1,445.45
John Wanamaker	1,609.78

Schedule of proposals for coal for the Mare Island Navy-Yard, under Bureau advertisement dated June 4, 1896; opened July 14, 1896.

Class 1.—3,000 tons bituminous coal:	
John L. Howard*	$21,420.00
R. B. Chandler	15,150.00
John Rosenfeld	17,400.00
C. H. Jouett	16,890.00
Class 2.—2,000 tons bituminous coal:	
John L. Howard*	14,480.00
R B. Chandler	10,300.00
John Rosenfeld	11,980.00
Class 2.—2,000 tons bituminous coal—Continued.	
C. H. Jouett	$11,480.00
Class 3: †	
John L. Howard	8,595.00
H. W. McNeill Co	12,750.00
R. B. Chandler	8,850.00
John Rosenfeld	9,720.00
C. H. Jouett	8,460.00

Schedule of proposals for supplies for the navy-yard, Norfolk, Va., under Bureau advertisement dated July 3, 1896; opened July 21, 1896.

Class 1.—Dredging:	
Sanford & Brooks	$450.00
Fred. E. Jones	475 00
Nannie H. Baker*	425.00
Class 2.—Pine piles:	
Sanford & Brooks	1,950.00
Chas. L. Culpepper	1,456.00
C. H. Bull*‡	1,365.00
Justin McCarthy	1,365.00
Class 3.—Portland cement:	
George L. Neville	2,880.00
National Building Supply Co.	(§)
Atlas Cement Co.*	2,400.00
B. Wallis Co	2,760.00
Arthur C. Babson	(§)
Class 4.—Gravel:	
George L. Neville	450.00
James Symington*	418.00
Class 5.—Gravel and sand:	
George L. Neville	2,165.00
James Symington*	2,056.00
Class 6.—Portland cement:	
George L. Neville	3,360.00
National Building Supply Co.	(§)
Atlas Cement Co.*	2,800.00
B. Wallis & Co	3,220.00
Arthur C. Babson	(§)
Class 7.—Pine piles:	
Sanford & Brooks	3,000.00
Chas. L. Culpepper	2,240.00
C. H. Bull	2,100.00
Justin McCarthy*‡	2,100.00
Class 8.—Dredging:	
Sanford & Brooks	$720.00
Nannie H. Baker*	680.00
Class 9.—Hardware:	
George L. Neville*	122.28
Ira B. White	122.58
Francis Harral	136.44
Class 7.—Lumber:	
J. H. Powell	5,193.50
A. S. Carman	5,075.30
Wm. Walker*	4,621.20
Class 8.—Bolt copper:	
Miller, Sloss & Scott	50.25
Park Bros. & Co., Limited*	48.00
Geo. T. Hawley	54.00
Dunham, Carrigan & Hayden Co.	51.00
A. P. Swoyer & Co	58.50
Frank W. McNeal	57.00
Holbrook, Merrill & Stetson	48.30
Class 9.—Steel plates:	
Miller, Sloss & Scott	391.09
Frank H. Woodruff	340.08
Carnegie Steel Co., Limited*	320.46
Dunham, Carrigan & Hayden Co.	374.08
Class 10.—Steel angles:	
Miller, Sloss & Scott	273.76
Frank H. Woodruff*	117.71
Carnegie Steel Co., Limited	119.81
Class 11.—Metals:	
Miller, Sloss & Scott	137.98
Geo. T. Hawley	128.35
Dunham, Carrigan & Hayden Co.	127.81
A. P. Swoyer & Co	184.24
Holbrook, Merrill & Stetson*	118.21

* Accepted. † No award. ‡ Tie bid. § Informal.

Schedule of proposals for supplies for the Mare Island Navy-Yard, under Bureau advertisement dated June 20, 1896; opened July 21, 1896.

Class 1.—200 blankets:	
William MacCann	$3,900.00
B. Z. Pippey & Co	3,780.00
John H. Tissot, jr.*	3,720.00
Class 2.—Lumber:	
J. H. Powell	1,350.00
A. S. Carman	1,230.00
Wm. Walker*	1,200.00
Class 3.—Lumber:	
J. H. Powell	1,696.50
A. S. Carman	1,545.70
Wm. Walker*	1,508.00
Class 4.—Hardware:	
Miller, Sloss & Scott	943.26
Wakefield Baker*	842.19
Geo. T. Hawley	900.81
Dunham, Carrigan & Hayden Co	926.91
Francis Harral	938.18
Class 5.—Mirrors:	
Miller, Sloss & Scott	52.30
W. P. Fuller & Co.*	25.30
S. & G. Gamp	36.75
Class 6.—Leather:	
Miller, Sloss & Scott*	278.55
Wm. Bowles	349.55
S. C. Forsaith Machine Co	320.92
Class 12.—Rubber, etc.:	
Miller, Sloss & Scott	1,365.00
Jas. Reilly Repair and Supply Co	955.25
Bowers Rubber Co.*	761.00
Frank W. McNeal	1,258.00
New York Belting and Packing Co	888.00
Boston Woven Hose and Rubber Co	1,243.00
Class 13.—Copper pipe:	
Miller, Sloss & Scott	1,994.55
American Tube Works	1,994.55
Geo. L. Neville	1,994.55
S. C. Forsaith Machine Co	2,088.32
Dunham, Carrigan & Hayden Co	2,017.00
A. P. Swoyer & Co	1,994.55
Frank W. McNeal	2,249.12
Class 13.—Copper pipe—Continued.	
Merchant & Co	$1,994.55
Holbrook, Merrill & Stetson*	1,814.85
Class 14.—Iron pipe:	
Miller, Sloss & Scott*	383.20
Class 15.—Oars:	
S. C. Forsaith Machine Co	313.37
G. M. Josselyn & Co	327.00
A. P. Swoyer & Co	313.88
Frank W. McNeal*	272.50
Class 16.—Lenses:	
Miller, Sloss & Scott	172.40
W. P. Fuller & Co	146.50
A. P. Swoyer & Co.*	85.30
Class 17.—Sandpaper:	
Miller, Sloss & Scott	29.88
W. P. Fuller & Co	27.60
Wakefield Baker	28.20
Geo. T. Hawley*	25.38
Dunham, Carrigan & Hayden Co	28.44
Frank W. McNeal	38.40
Class 18.—Steel plates:	
Miller, Sloss & Scott	2,951.25
Frank H. Woodruff	2,906.54
Carnegie Steel Co., Limited*	2,738.85
Dunham, Carrigan & Hayden Co	3,197.19
Class 19.—Steel angles:	
Miller, Sloss & Scott	2,961.81
Frank H. Woodruff*	2,716.45
Carnegie Steel Co., Limited	2,832.61
Class 20.—Steel rivet rod:	
Miller, Sloss & Scott	651.00
Frank H. Woodruff	630.00
Park Bro. & Co., Limited*	504.00
J. H. Sternbergh	598.50
Carnegie Steel Co., Limited	514.50
Dunham, Carrigan & Hayden Co	609.00
Holbrook, Merrill & Stetson	714.00
Class 21.—Iron:	
Miller, Sloss & Scott	297.59
Frank H. Woodruff	407.46
Dunham, Carrigan & Hayden Co.*	284.41

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated July 3, 1896; opened July 21, 1896.

Class 1.—Corn brooms:	
Geo. L. Neville	$400.00
Hern Lohmeyer	280.00
Frank W. McNeal	248.00
Manhattan Supply Co	262.00
Francis J. Dessoir	269.00
Geo. R. Hibberd*	239.00
John H. Tissot, jr	264.00
E. B. Thurber	275.00
Class 2.—Coir brooms:	
Hern Lohmeyer	130.00
Frank W. McNeal*	121.00
Manhattan Supply Co	173.50
Francis J. Dessoir	181.50
Geo. R. Hibberd	174.00
Class 3.—Brushes: †	
Hern Lohmeyer	9,197.00
Geo. F. Mitchell	(‡)
Geo. R. Hibberd	9,114.50
Jno. H. Tissot, jr	9,920.40
Class 4.—Screws:	
Robt. Murray*	219.61
J. H. Chesley & Co	226.96
Geo. L. Neville	228.62
S. C. Forsaith Machine Co	252.97
Francis Harral	239.58
Brooklyn Hardware and Sporting Goods Co	230.38
John H. Tissot, jr	233.74
Class 5.—Flax twine:	
E. B. Thurber §	29.50
Class 6.—White cedar:	
C. F. Hodsden Co.*	4,514.00
Geo. L. Neville	7,175.00
Chas. E. Pell	4,690.00
Watson & Pittinger	4,871.50
Class 7.—White ash:	
Chas. E. Pell*	322.50
Gerrard Jansen	413.00
Watson & Pittinger	352.00
Class 8.—White pine:	
Geo. L. Neville	$9,520.00
Chas. E. Pell	6,045.00
Watson & Pittinger*	5,899.00
Class 9.—Mahogany:	
Geo. L. Neville	660.00
S. C. Forsaith Machine Co	507.00
Chas. E. Pell	537.00
Chas. W. P. Smith*	480.00
Watson & Pittinger	555.00
Wm. E. Uptegrove & Bro	540.00
Class 10.—Yellow poplar:	
Geo. L. Neville	2,825.00
Chas. E. Bell	2,280.75
Gerrard Jansen	2,246.50
Watson & Pittinger	2,404.00
Wm. E. Uptegrove & Bro.*	2,236.50
Class 11.—Yellow pine:	
Chas. E. Pell*	525.00
Watson & Pittinger	562.50
Class 12.—Drills:	
Geo. L. Neville	26.06
S. C. Forsaith Machine Co	33.00
Frank W McNeal*	22.49
Manhattan Supply Co	24.06
Francis Harral	22.62
Brooklyn Hardware and Sporting Goods Co	28.00
Jas. Reilly Repair and Supply Co	26.14
Class 13.—Iron and steel:	
Frank H. Woodruff	358.02
Manhattan Supply Co.*	353.44
A. P. Swoyer & Co	471.30
Class 14.—Sheet brass:	
Waterbury Brass Co	1,083.08
Geo. L. Neville*	1,083.08
Frank W. McNeal	1,107.80
Merchant & Co	1,083.08
Manhattan Supply Co	1,083.08
Jno. H. Tissot, jr	1,114.55
A. P. Swoyer & Co	1,083.08

* Accepted.
† No award.
‡ Informal.
§ Open purchase.

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated July 3, 1896; opened July 21, 1896—Continued.

Class 15.—Sheet gum:	
Manhattan Supply Co	$1,456.00
Jas. Reilly Repair and Supply Co.	1,312.00
General Equipment and Engineering Co	1,471.84
Boston Woven Hose and Rubber Co.*	1,248.00
Class 16.—Alcohol:	
National Distributing Co.*	6,200.00
S. C. Forsaith Machine Co	7,475.00
Class 17.—Red lead:	
R. P. Rowe	4,900.00
Wetherell & Bro	4,875.00
Fiske Bros. Refining Co	4,652.50
S. C. Forsaith Machine Co	5,050.00
James Langmuir*	4,329.80
Austin P. Brown	4,670.00
Class 18.—White lead:	
John Lucas & Co	6,807.50
R. P. Rowe	7,010.00
Wetherell & Bro	7,100.00
Fiske Bros. Refining Co	6,615.00
S. C. Forsaith Machine Co	7,335.00
James Langmuir	7,096.00
Frank E. Clark*	6,285.72
Austin P. Brown	6,556.00
Class 19.—White zinc:	
John Lucas & Co	6,165.00
Philip W. Ruppert	6,490.00
S. C. Forsaith Machine Co	8,025.00
Geo. W. Betts	7,089.00
Jas. Langmuir*	5,092.50
Frank E. Clark	6,655.00
E. B. Thurber	6,589.00
Austin P. Brown	6,039.00
Class 20.—Brown zinc:	
John Lucas & Co	398.00
Philip W. Ruppert	390.00
Geo. W. Betts	573.00
Chas. M. Childs & Co	420.00
Smith, Klino & French Co	412.50
James Langmuir	388.98
Frank W. McNeal	390.00
E. B. Thurber	397.00
Austin P. Brown	700.00
Class 21.—Paints:	
John Lucas & Co	6,068.47
Wetherell & Bro	(†)
Geo. W. Betts	7,201.70
Chas. M. Childs & Co	6,618.25
Smith, Kline & French Co	6,367.45
James Langmuir	5,687.70
Austin P. Brown	5,988.70
Class 22.—Tallow, etc.:	
Fiske Bros. Refining Co.*	515.00
Class 23.—Concentrated lye:	
Fiske Bros. Refining Co	597.00
S. C Forsaith Machine Co	560.00
Smith, Kline & French Co	649.00
Shoemaker & Busch	600.00
Manhattan Supply Co	594.00
Francis J. Dessoir	549.00
John H. Tissot, jr	600.00
General Equipment and Engineering Co	534.00
E. B. Thurber	775.00
Jno. J. O'Rorke*	517.00
Class 24. Gum shellac:	
Fiske Bros. Refining Co	1,450.00
Chas. M. Childs & Co.*	1,425.00
M. Feigel	1,475.00
General Equipment and Engineering Co	1,599.00
E. B. Thurber	1,490.00
Austin P. Brown	1,650.00
Class 25.—Japan drier, etc.:	
Anglo-American Varnish Co	5,030.00
John Lucas & Co	5,645.00
B. Z. Pippey & Co	5,987.50
S. C. Forsaith Machine Co	6,155.00
Chas. M. Childs & Co	5,280.00
Shoemaker & Busch	5,695.00
James Langmuir	5,035.00
Union Supply Co.*	4,640.00
Queens County Varnish Works	(†)
E. B Thurber	4,815.00
Austin P. Brown	7,865.00
Class 26.—Linseed oil:	
R. P. Rowe*	$2,490.00
Manhattan Oil Co	2,670.00
Fiske Bros. Refining Co	2,570.50
S. C. Forsaith Machine Co	3,128.00
Smith, Kline & French Co	3,470.00
Austin P. Brown	2,770.00
Class 27.—Sperm oil:	
Manhattan Oil Co	14,520.00
Fiske Bros. Refining Co.*	13,395.00
Austin P. Brown	14,550.00
Class 28.—Lard oil: ‡	
Manhattan Oil Co	8,680.00
Fiske Bros. Refining Co	8,912.00
Austin P. Brown	8,600.00
Class 29.—Brass pipe:	
Geo. L. Neville	861.65
S. C. Forsaith Machine Co	949.47
Frank W. McNeal	917.90
American Tube Works	861.65
Merchant & Co	861.65
Manhattan Supply Co	861.65
Brooklyn Hardware and Sporting Goods Co	861.65
John H. Tissot, jr.*	843.75
A. P. Swoyer & Co	861.65
Class 30.—Pipe fittings:	
Frank H. Woodruff	188.34
S. C. Forsaith Machine Co	195.87
Manhattan Supply Co	213.00
Brooklyn Hardware and Sporting Goods Co	193.98
A. P. Swoyer & Co.*	174.00
General Equipment and Engineering Co	225.75
Class 31.—Files:	
J. H. Chesley & Co	360.30
Geo. L. Neville	382.14
S. C. Forsaith Machine Co	339.34
Frank W. McNeal	338.91
Manhattan Supply Co	381.60
Brooklyn Hardware and Sporting Goods Co	338.58
A. P. Swoyer & Co	497.71
J. Barton Smith Co.*	322.98
General Equipment and Engineering Co	421.08
Class 32.—Tools:	
S. C. Forsaith Machine Co	1,186.63
Manhattan Supply Co	875.77
Francis Harral*	850.00
Brooklyn Hardware and Sporting Goods Co	905.52
John H. Tissot, jr	897.12
E. B. Thurber	885.70
Class 33.—Laundry soap:	
S. C. Forsaith Machine Co	79.60
Frank W. McNeal	66.00
Manhattan Supply Co	70.00
Francis J. Dessoir*	57.60
Geo. R. Hebberd	64.00
John Tissot, jr	82.00
E. B. Thurber	120.00
Class 34.—Beeswax:	
Hirsh & Lowenstein	292.10
Fiske Bros. Refining Co	290.00
S. C. Forsaith Machine Co	320.00
Smith, Kline & French Co	298.75
Frank W. McNeal	330.00
Louis Will	280.00
Manhattan Supply Co	334.00
Francis J. Dessoir	299.00
M. Feigel*	274.90
Brooklyn Hardware and Sporting Goods Co	450.00
E. B. Thurber	315.00
John J. O'Rorke	290.00
Class 35.—Cotton waste.	
Fiske Bros. Refining Co.*	1,687.50
S. C. Forsaith Machine Co	1,878.00
Frank W. McNeal	1,950.00
Thomas Kelly	2,100.00
Manhattan Supply Co	2,085.00
Brooklyn Hardware and Sporting Goods Co	2,025.00
Jas. Reilly Repair and Supply Co.	1,912.50

* Accepted. † Informal. ‡ Rejected.

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated July 3, 1896; opened July 21, 1896—Continued.

Class 35.—Cotton waste—Continued.	
General Equipment and Engineering Co	$1,881.00
E. B. Thurber	2,025.00
Class 36.—Silk laces:	
Thos. Kelly *	150.00
John Tissot, jr	166.66
Class 37.—White twill:	
Thos. Kelly	236.00
Manhattan Supply Co.*	233.60
John Tissot, jr	280.00
E. B. Thurber	240.00
Class 38.—Buttonhole twist:	
Thos. Kelly*	72.00
Class 39.—Spool cotton:	
Thos. Kelly *	155.00
Class 40.—5,000 yards blue flannel (thin):	
Wendell, Fay & Co	4,145.00
B. Y. Pippey & Co.*	3,950.00
Jno. H. Tissot, jr	6,000.00
Class 41.—5,000 yards tan cotton duck:†	
Frank W. McNeal	$1,342.50
Jno. H. Tissot, jr	1,400.00
E. B. Thurber	1,448.50
Class 42.—5,000 dozen ivory buttons:	
Wm. W. Foulkrod	157.50
Thos. Kelly *	155.00
Manhattan Supply Co	165.00
Class 43.—5,000 jackknives: ‡	
Frank W. McNeal	1,248.50
W. F. Rockwell	1,600.00
Manhattan Supply Co	1,515.00
John Tissot, jr	2,000.00
Class 44.—10,000 pounds tea:	
M. A. Bronson	2,148.00
Thos. J. O'Donohue	3,000.00
E. F. Cumming	3,223.00
C. J. Caughey	2,837.00
Frank W. McNeal	2,598.00
Francis J. Dessoir	2,647.00
E. B. Thurber *	2,794.00
John J. O'Rorke	2,397.00

Schedule of proposals for supplies for the Washington Navy-Yard, under Bureau advertisement dated July 13, 1896; opened July 28, 1896.

Class 1:	
James Reilly Repair and Supply Co.*	$13.92
Barber & Ross	37.44
W. A. Pate	42.22
J. H. Sternbergh	43.20
Smith Courtney Co	52.32
Class 2:	
James H. McGill	3,000.00
John Miller	2.800.00
W. A: Pate	2,936.00
Chas. Ford	3,188.00
Young O. Wilson	3,720.00
John E. Harrell & Co. *	2,800.00
Class 3:	
James H. McGill	330.00
John Miller	400.00
J. T. Walker & Sons	350.00
W. A. Pate	335.00
Clark Bros. Lime and Cement Co. *	300.00
Grove Lime and Coal Co	362.50
Class 4:	
James H. McGill *	138.60
John Miller	210.00
J. T. Walker & Sons	154.00
Grove Lime and Coal Co	362.50
Class 5:	
D. C. Alexander	460.00
Jno. B. Lord *	276.00
Wayne Smith	391.00
John Miller	460.00
J. T. Walker & Sons	575.00
W. H. Pate	284.50
Clark Bros. Lime and Cement Co	322.00
Frank C. Hopkins	278.40
Class 6:	
James Reilly Repair and Supply Co	$121.79
James H. McGill *	102.50
Charles Becker	107.65
W. A. Pate	116.00
Smith Courtney Co	122.99
Class 7:	
James Reilly Repair and Supply Co	87.93
Barber & Ross	100.19
W. A. Pate	82.52
F. P. May & Co.*	77.34
Smith Courtney Co	79.99
Class 8:	
W. T. Galliher & Bro	505.21
Church & Stephenson	505.21
Thos. W. Smith *	483.25
Riley & Walker	492.03
Class 9:	
D. C. Alexander	236.63
W. T. Galliher & Bro	197.68
Church & Stevenson *	164.78
Thos. W. Smith	233.45
Riley & Walker	204.87
Class 10:	
W. T. Galliher & Bro	541.86
Church & Stephenson	540.65
Thos. W. Smith	534.58
Grayson & Cain	540.65
Riley & Walker *	517.09
Class 11:	
D. C. Alexander	616.40
John Miller	1,340.00
G. W. Hunter	509.20
L. A. Clark	506.52
Riley & Walker	562.80

Schedule of proposals for coal for naval hospitals, etc., under Bureau advertisement dated July 7, 1896; opened July 28, 1896.

Class 1:	
Samuel G. French	$837.20
J. A. & A. W. Walker	770.00
David Duncan & Son *	722.50
John Miller	910.00
Class 2:	
Samuel G. French	1,632.00
David Duncan & Son	1,494.00
Jesse Campbell	1,494.50
J. E. Lewis & Co. *	1,272.50
John Miller	2,400.00
Class 3:	
Samuel G. French *	5,275.00
Joseph K. Wells	5,425.00
Class 3—Continued.	
David Duncan & Son	$5,373.00
Peale, Peacock & Kerr	5,350.00
John Miller	7.500.00
Class 4:	
Samuel G. French	2,204.00
Frank F. Mathers	2,113.25
Joseph B. Van Dusen, jr	2,137.00
Peale, Peacock & Kerr *	2,094.25
John Miller	2,650.00
Class 5:	
Joseph B. Van Dusen, jr. *	30.00
John Miller	42.50

* Accepted. † Open purchase. ‡ No award; readvertised.

Schedule of proposals for coal for naval hospitals, etc., under Bureau advertisement dated July 7, 1896; opened July 28, 1896—Continued.

Class 6:	
Geo. L. Sheriff	$633.60
John Miller	648.00
Chas. Werner*	630.00
Class 7:	
Geo. L. Sheriff*	109.40
John Miller	114.00
Chas. Werner	114.00
Class 8:	
Geo. L. Sheriff*	32.82
John Miller	34.20
Class 9:	
Rawlins, Nichols & Co	$2,196.60
Vallingham & Wrenn Co	2,118.80
Batchelder & Collins	2,139.00
Geo. W. Taylor & Co.*	2,058.60
John Miller	2,330.00
W. & J. Parker	2,117.00
Samuel P. Oast	2,300.00
Class 10:	
John Miller	150.00
Samuel P. Oast*	57.50

Schedule of proposals for fuel for the navy-yard, Portsmouth, N. H., under Bureau advertisement dated July 7, 1896; opened July 28, 1896.

Class 1:	
J. A. & A. W. Walker*	$2,350.00
Peale, Peacock & Kerr	2,460.25
Chas. E. Walker	2,366.25
David Duncan & Son	2,365.25
Joseph K. Wells	2,598.25
Samuel G. French	2,607.75
John Miller	3,325.00
Class 2:	
J. A. & A. W. Walker*	6,550.00
Peale, Peacock & Kerr	6,639.45
Chas. E. Walker	6,562.50
David Duncan & Son	6,574.20
Joseph K. Wells	7,138.75
Samuel G. French	7,164.45
John Miller*	8,610.00
Class 3:	
J. A. & A. W. Walker*	$723.75
Chas. E. Walker	775.00
David Duncan & Son	775.00
Joseph K. Wells	866.25
Sam'l G. French	872.50
John Miller	1,125.00
Class 4:	
J. A. & A. W. Walker*	1,153,20
Peale, Peacock & Kerr	1,236.90
Chas. E. Walker	1,178.00
David Duncan & Son	1,187.30
Samuel G. French	1,140.80
John Miller	1,160.00

Schedule of proposals for fuel for the Boston Navy-Yard, under Bureau advertisement dated July 7, 1896; opened July 28, 1896.

Class 1:	
Peale, Peacock & Kerr	$7,536.00
E. B. Townsend*	7,088.00
David Duncan & Son	7,184.00
J. E. Lewis & Co	7,360.00
Joseph K. Wells	7,968.00
Samuel G. French	8,064.00
Sturtevant Norton & Co	7,424.00
John Miller	9,600.00
Class 2:	
Peale, Peacock & Kerr	4,500.05
E. B. Townsend	4,406.25
David Duncan & Son*	4,287.95
J. E. Lewis & Co	4,405.00
Joseph K. Wells	4,803.65
Samuel G. French	4,851.40
Sturtevant Norton & Co	4,479.50
John Miller	5,970.00
Class 3:	
J. E. Lewis & Co	68.58
Joseph K. Wells	88.80
Samuel G. French	90.00
Sturtevant Norton & Co.*	66.00
Class 4:	
Peale, Peacock & Kerr	$8,425.00
E. B. Townsend	7,650.00
David Duncan & Son	8,200.00
J. E. Lewis & Co	8,500.00
Samuel G. French	9,850.00
Sturtevant Norton & Co	8,100.00
John Miller	15,000.00
James Fairfield*	7,975.00
Class 6:	
Peale, Peacock & Kerr	1,032.00
E B. Townsend*	891.00
David Duncan & Son	927.00
Sturtevant Norton & Co	1,005.00
Curran & Burton	1,005.00
Class 7:	
E. B. Townsend	40.00
Sturtevant Norton & Co.*	36.00
Class 8:	
J. E. Lewis & Co.*	170.00
Sturtevant Norton & Co	235.00

Schedule of proposals for fuel for the naval station, Newport, R. I., under Bureau advertisement dated July 7, 1896; opened July 28, 1896.

Class 1:	
Peale, Peacock & Kerr	$7,731.00
E. B. Townsend	7,780.50
David Duncan & Son*†	7,731.00
Joseph K. Wells	7,854.00
Samuel G. French	7,887.00
Class 2:	
Peale, Peacock & Kerr*	3,483.00
E. B. Townsend	3,237.00
David Duncan & Son	3,150.00
Samuel G. French	2.916.00
Class 3:	
Peale, Peacock & Kerr	$9,246.00
E. B. Townsend	9,267.00
David Duncan & Son	9,246.00
Joseph K. Wells*	9,234.00
Samuel G. French	9,272.00
Class 4:	
E. B. Townsend	1,359.75
David Duncan & Son	1,369.75
Joseph K. Wells*	1,358.50
Samuel G. French	1,369.50
Class 5:‡	

Schedule of proposals for fuel for the naval station, New London, Conn., under Bureau advertisement dated July 7, 1896; opened July 28, 1896.

Class 1:	
Peale, Peacock & Kerr*	$399.00
Class 1—Continued.	
David Duncan & Son	$395.00

*Accepted. †Tie bid. ‡Open purchase.

Schedule of proposals for fuel for the New York Navy-Yard, under Bureau advertisement dated July 7, 1896; opened July 28, 1896.

Class 1:	
Peale, Peacock & Kerr	$2,067.95
David Duncan & Son	2,077.65
Moquin Offerman Heissenbuttel Coal Co	2,208.00
Joseph K. Wells	2,100.05
Sam'l G. French	2,104.90
Barber & Zeigler*	2,058.25
Class 2:	
Peale, Peacock & Kerr	29,279.50
David Duncan & Son	29,370.00
Moquin Offerman Heissenbuttel Coal Co	31,332.00
Joseph K. Wells	29,295.00
Sam'l G. French	29,565.00
Jno. Miller	(†)
Barber & Zeigler*	29,250.00
Class 3:	
Peale, Peacock & Kerr	4,354.00
Clearfield Bituminous Coal Co	4,410.00
David Duncan & Son	4,326.00
Moquin Offerman Heissenbuttel Coal Co	4,340.00
Berwind White Coal Mining Co	4,410.00
Sam'l G. French	4,536.00
Davis Coal and Coke Co.*	4,172.00
Class 5:	
Peale, Peacock & Kerr	$3,539.66
Clearfield Bituminous Coal Co	3,483.90
David Duncan & Son	3,462.54
Moquin Offerman Heissenbuttel Coal Co	3,495.80
Berwind White Coal Mining Co	3,483.90
Sam'l G. French	3,583.44
Davis Coal and Coke Co.*	3,296.00
Class 6:	
Peale, Peacock & Kerr	5,635.50
Clearfield Bituminous Coal Co	5,715.00
David Duncan & Son	6,025.50
Moquin Offerman Heissenbuttel Coal Co.*	5,596.50
Berwind White Coal Mining Co	5,694.00
Sam'l G. French	6,318.00
Davis Coal and Coke Co	5,401.50
Class 7:	
David Duncan & Son	459.20
Moquin Offerman Heissenbuttel Coal Co	432.00
Davis Coal and Coke Co.*	420.00
Class 8: ‡	
Class 9:	
Max Morgenstein	222.60
Clark & Wilkins*	180.00

Schedule of proposals for fuel for the navy-yard, League Island, Pa., under Bureau advertisement dated July 7, 1896; opened July 28, 1896.

Class 1:	
Peale, Peacock & Kerr	$2,532.10
Chas. D. Norton & Co.*	2,447.15
Joseph B. Van Dusen, jr	2,517.20
Joseph K. Wells	2,553.80
Saml. G. French	2,525.55
Frank F. Mathers	2,549.05
Class 2:	
Peale, Peacock & Kerr	8,570.95
Chas. D. Norton & Co.* §	8,260.50
Joseph B. Van Dusen, jr	8,510.50
Joseph K. Wells	8,667.75
Class 2—Continued.	
Saml. G. French *‖	$8,628.65
Frank F. Mathers	8,627.35
Class 3:	
Peale, Peacock & Kerr	707.50
Clearfield Bituminous Coal Co.*	645.00
Chas. D. Norton & Co	697.50
Joseph B. Van Dusen, jr	675.00
Saml. G. French	810.00
Davis Coal & Coke Co	692.50
Frank F. Mathers	742.50

Schedule of proposals for fuel for the Naval Academy, Annapolis, Md., under Bureau advertisement dated July 7, 1896; opened July 28, 1896.

Class 1:	
Peale, Peacock & Kerr	$954.00
Henry B. Myers	958.00
John Miller	1,100.00
Joseph S. M. Basil*	949.00
Class 2:	
Frank Ehlen	12,960.00
Merchants' Coal Co	12,285.00
Sam'l G. French	13,230.00
Allegheny Co	16,065.00
John Miller	13,635.00
Listie Mining and Manufacturing Co	11,655.00
Davis Coal and Coke Co.*	11,655.00 11,205.00
Black-Sheridan-Wilson Co	12,150.00
S. M. Hamilton & Co	12,645.00
Wm. L. Read	12,060.00
Class 3:	
Frank Ehlen *¶	4,950.00
Class 3—Continued.	
Sam'l G. French	$4,950.00
Allegheny Co	7,140.00
John Miller	7,500.00
Black-Sheridan-Wilson Co	4,980.00
S. M. Hamilton & Co	5,295.00
Wm. L. Read	5,250.00
Class 4:	
Frank Ehlen	2,016.00
Merchants' Coal Co	1,911.00
Sam'l G. French	2,058.00
Allegheny Company	2,499.00
John Miller	2,310.00
Listie Mining and Manufacturing Co	1,813.00
Davis Coal and Co.*	1,813.00 1,743.00
Black-Sheridan-Wilson Co	1,890.00
Wm. L. Read	1,876.00

* Accepted.
† Informal.
‡ Open purchase.
§ The first two items awarded to S. G. French.
‖ The last six items to Chas. D. Norton & Co.
¶ Tie bid.

Schedule of proposals for fuel for the Washington Navy-Yard under Bureau advertisement dated July 7, 1896; opened July 28, 1896.

Class 1:	
V. Baldwin Johnson	$5,198.50
Allegheny Co	5,159.50
John Miller	4,717.50
Wm. L. Read *	4,939.50
Class 2:	
V. Baldwin Johnson	19,670.00
Allegheny Co	19,390.00
John Miller	17,850.00
Wm L. Read *	18,690.00
Class 3:	
John Miller *	1,192.50
Geo. R. Sheriff	(†)
Wm L. Read	1,364.50
Class 4:	
Peale, Peacock & Kerr	2,215.80
John Miller	3,120.00
Class 4—Continued.	
Chas. Werner *	$1,931.35
Wm. L. Read	2,129.75
Class 5:	
John Miller	60.00
Wm. L. Read *	55.50
Class 6:	
Allegheny Co	197.50
John Miller *	127.50
Wm. L. Read	220.00
Class 7:	
James N. Gunnell *	100.00
Class 8:	
Frank Lilly	1,232.10
Clark & Wilkins	2,220.00
John Miller	1,110.00
Chas. Werner *	1,121.10

Schedule of proposals for fuel for the Norfolk Navy-Yard, under Bureau advertisement dated July 7, 1896; opened July 28, 1896.

Class 1:	
Geo. W. Taylor & Co	$774.80
W. & J. Parker *	710.50
John Miller	1,000.00
Samuel P. Oast	807.50
Nottingham & Wrenn Co	727.25
Class 2.	
Geo. W. Taylor & Co	748.50
W. & J. Parker *	667.50
John Miller	900.00
Sam'l P. Oast	750.00
Nottingham & Wrenn Co	718.50
Class 3:	
Geo. W. Taylor & Co.*	1,307.90
W. & J. Parker	1,392.00
Jno. Miller	2,610.00
Sam'l P. Oast	1,450.00
Class 4:	
Geo. W. Taylor & Co	4,186.00
Wm. Lamb	4,340.00
John Miller	5,600.00
Davis Coal and Coke Co.*	4,130.00
Class 5:	
Geo. W. Taylor & Co	$10,166.00
Wm. Lamb	10,540.00
John Miller	13,600.00
Davis Coal and Coke Co.*	10,080.00
Class 6:	
Geo. W. Taylor & Co	1,495.00
Wm. Lamb ‡	1,550.00
Class 7:	
Geo. W. Taylor & Co	1,017.50
Wm. Lamb *	1,017.50
Class 8:	
Geo. W. Taylor & Co	131.25
W. & J. Parker *	116.25
Sam'l P. Oast	181.25
Nottingham & Wrenn Co	132.50
Class 9:	
Geo. W. Taylor & Co	688.85
John Miller	(†)
Nottingham & Wrenn Co.*	603.75
Class 10. §	

Schedule of proposals for fuel for the naval station, Port Royal, S. C., under Bureau advertisement dated July 7, 1896; opened July 28, 1896.

Class 1:	
C. H. Betts	$1,800.00
Class 1—Continued.	
Bond, Harrison & Co.*	$1,487.50

Schedule of proposals for fuel for the Pensacola Navy-Yard, under Bureau advertisement dated July 7, 1896; opened July 28, 1896.

Class 1:	
F. Bauer*	$108.00
Class 1—Continued.	
Benj. Dolphin	$120.00

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated July 18, 1896; opened August 4, 1896.

Class 1:	
John J. O'Rorke*	$968.00
C. J. Caughey	1,052.00
Francis J. Dessoir	1,084.00
Wm. G. Ahrens	1,160.00
Sidney Thursby	1,020.00
Class 2	
Watsontown Boot and Shoe Co	13,400.00
Bay State Shoe and Leather Co	17,500.00
Geo. F. Roedel*	13,250.00
Class 3:	
Francis J. Dessoir	$970.00
Wm. G. Ahrens *	940.00
Manhattan Supply Co	1,400.00
Fiske Bros. Refining Co	1,050.00
Class 4:	
General Electric Co.*	3,570.00
Beacon Lamp Co	3,652.50
Columbia Incandescent Lamp Co.	4,305.01
Western Electric Co	5,113.00
E. S. Greely Co	3,750.00

*Accepted, † Informal. ‡ No award. § Open purchase.

Schedule of proposals for supplies for the Mare Island Navy-Yard, under Bureau advertisement dated July 8, 1896; opened August 4, 1896.

Class 1:	
Francis Harral *	$49.00
Miller, Sloss & Scott	59.80
Class 2:	
Wm. Walker	210.40
J. H. Powell	189.50
A. S. Carman *	167.70
Class 3:	
Wakefield Baker	75.00
Frank W. McNeal	110.00
Richard N. Nason	85.00
Miller, Sloss & Scott *	74.50
Class 4:	
Wakefield Baker	30.00
Jacob Levi, jr	29.60
Richard N. Nason	35.00
Thos. H. Dowling	32.50
Pacific Marine Supply Co. *	29.20
Miller, Sloss & Scott	35.00
Class 5:	
Holbrook, Merrill & Stetson *	1,869.60
H. D. Morton	2,034.20
Dunham, Carrigan & Hayden Co	2,055.00
Miller, Sloss & Scott	2,225.60
Class 6:	
Holbrook, Merrill & Stetson *	210.00
Dunham, Carrigan & Hayden Co	210.00
Chas. F. Tay	210.00
Selby Smelting and Lead Co	210.00
Alonzo A. Watkins	210.00
Colwell Lead Co	237.60
Miller, Sloss & Scott	210.00
Class 7:	
Holbrook, Merrill & Stetson	2,600.00
S. C. Forsaith Machine Co. *	2,420.00
Selby Smelting and Lead Co	2,480.00
Class 8:	
Dunham, Carrigan & Hayden Co	490.42
I. S. Van Winkle & Co. *	482.32
Miller, Sloss & Scott	501.00
Class 9:	
Holbrook, Merrill & Stetson *	87.50
H. D. Morton	110.00
S. C. Forsaith Machine Co	106.75
Selby Smelting & Lead Co	91.80
Alonzo A. Watkins	91.80
Colwell Lead Co	126.25
Miller, Sloss & Scott	119.00
Class 10:	
Holbrook, Merrill & Stetson	1,550.00
S. C. Forsaith Machine Co.*	990.00
Selby Smelting & Lead Co	1,550.00
Class 11:	
Holbrook, Merrill & Stetson	273.55
Chas. F. Tay *	256.62
Alonzo A. Watkins	265.30
Manhattan Supply Co	408.22
Miller, Sloss & Scott	300.30
Class 12:	
Dunham, Carrigan & Hayden Co	1,381.12
Francis Harral *	1,198.00
Richard N. Nason	1,482.75
Miller, Sloss & Scott	1,224.25
Class 13:	
American White Lead and Color Works	2,147.10
Chas. M. Yates	2,198.20
Richard N. Nason	2,218.10
W. P. Fuller & Co. *	1,734.20
Class 14:	
Wm. P. Redington	1,275.00
W. P. Fuller & Co.*	1,200.00
Mack & Co	1,235.00
Class 15:	
James Langmuir *	1,418.50
S. C. Forsaith Machine Co	1,880.00
American White Lead and Color Works	1,725.00
Chas. M. Yates	1,620.00
F. N. Woods	1,557.00
Richard N. Nason	1,750.00
W. P. Fuller & Co	1,545.00
John J. Lawrence, jr	1,597.00
Wm. S. Miller	1,650.00
Class 16:	
Jas. Langmuir *	$1,364.94
S. C. Forsaith Machine Co	1,785.00
American White Lead and Color Works	1,800.00
Chas. M. Yates	1,680.00
F. N. Woods	1,557.00
Richard N. Nason	1,725.00
W. P. Fuller & Co	1,476.00
John J. Lawrence, jr	1,602.00
Wm. S. Miller	1,650.00
Class 17:	
John Lucas & Co	1,597.50
James Langmuir	1,474.95
S. C. Forsaith Machine Co	2,200.00
American White Lead and Color Works	2,250.00
Chas. M. Yates	1,725.00
F. N. Woods	2,060.00
Richard N. Nason	2,125.00
W. P. Fuller & Co.*	1,325.00
Jno. J. Lawrence, jr	1,562.50
Class 18:	
John Lucas & Co	250.00
James Langmuir	237.49
S. C. Forsaith Machine Co.*	288.50
American White Lead and Color Works	400.00
Chas. M. Yates	175.00
F. N. Woods	357.50
Richard N. Nason	250.00
W. P. Fuller & Co.*	149.00
John J. Lawrence, jr	315.50
Class 19:	
Henry Mohr	(†)
Chas. M. Yates *	330.00
Richard N. Nason	482.50
W. P. Fuller & Co	331.00
Class 20:	
Chas. M. Yates	760.00
Richard N. Nason	780.00
W. P. Fuller & Co	760.00
Wm. S. Miller *	740.00
Class 21:	
Charles M. Yates *	55.00
Richard N. Nason	80.00
Class 22:	
Chas. M. Yates	90.00
Richard N. Nason	80.00
Wm. P. Redington	75.00
W. P. Fuller & Co.*	59.00
Mack & Co	70.00
Class 23:	
Chas. M. Yates	1,441.00
Richard N. Nason	1,510.00
W. P. Fuller & Co.*	1,387.00
Wm. S. Miller	1,390.00
Class 24:	
Chas. M. Yates	120.00
Richard N. Nason	130.00
W. P. Fuller & Co.*	99.80
E. A. Wadhams	120.00
Class 25:	
Holbrook, Merrill & Stetson	1,054.70
H. D. Morton	1,178.80
Dunham Carrigan & Hayden Co	1,054.70
Geo. L. Neville	1,054.70
American Tube Works	1,054.70
Manhattan Supply Co.*	1,054.70
Merchant & Co	1,054.70
Miller, Sloss & Scott	1,054.70
Class 26:	
Wakefield Baker	43.30
Geo. T. Hawley	88.20
H. D. Morton	65.50
S. C. Forsaith Machine Co	49.15
Francis Harral *	42.15
Miller, Sloss & Scott	63.55
Class 27:	
Holdbrook, Merrill & Stetson	1,002.20
H. D. Morton	870.96
Dunham, Carrigan & Hayden Co	913.36
Chas. F. Fay *	732.83
Miller, Sloss & Scott	1,054.43

* Accepted.

† Informed.

Schedule of proposals for supplies for the Mare Island Navy-Yard, under Bureau advertisement dated July 8, 1896; opened August 4, 1896—Continued.

Class 28:	
Wakefield Baker	$485.92
Geo. T. Hawley	381.07
S. C. Forsaith Machine Co	387.70
Dunham, Carrigan & Hayden Co.	451.27
Francis Harral *	356.55
Miller, Sloss & Scott	498.96
Class 29:	
Wakefield Baker	76.88
Geo. T. Hawley	80.77
Dunham, Carrigan & Hayden Co.	73.28
Francis Harral *	58.90
Miller, Sloss & Scott	80.70
Class 30:	
Richard N. Nason	2,000.00
W. P. Fuller & Co.*	1,700.00
Manhattan Supply Co	2,290.00
Mack & Co	1,970.00
John L. Howard	1,875.00
Class 31:	
W. H. Leahy	1,750.00
Wm. Walker *	1,513.75
A. S. Carman	1,580.00
Class 32:	
John Rosenfeld	1,575.00
R. D. Chandler	1,475.00
John L. Howard	1,360.00
John L. Howard *	1,317.50
C. H. Jouett	1,557.50
Class 33:	
John Rosenfeld	14,400.00
R. D. Chandler	14,160.00
John L. Howard	13,056.00
John L. Howard *	12,648.00
C. H. Jouett	13,512.00
Class 34:	
John Rosenfeld	12,663.00
R. D. Chandler	11,859.00
Jno. L. Howard	10,934.40
Jno. L. Howard *	10,592.70
C. H. Jouett	11,558.00
Class 35:	
R. D. Chandler	4,878.25
J. C. Wilson	4,759.75
John L. Howard *	4,759.75
Class 36:	
John Rosenfeld	1,530.10
J. C Wilson	1,485.00
John L. Howard *	1,067.00
C. H. Jouett	1,116.50
Class 37:	
J. C. Wilson *	2,025.00
Class 38:	
Wm. Walker *	280.00
J. C. Wilson	400.00
J. H. Powell	280.00
A. S. Carman	552.00
Class 39:	
John Rosenfeld	1,475.25
J. C. Wilson *	1,417.50
Class 40:	
Richard N. Nason *	1,000.00
Class 41:	
R. D. Chandler	3,564.00
John L. Howard *	2,052.00 2,880.00
Class 42:	
John Rosenfeld	$1,700.00
R. D. Chandler *	1,475.00
John L. Howard	1,942.50
C. H. Jouett	1,682.50
Class 43:	
Henry Mohr	1,875.00
Leroy Hough *	4,531.25
Leon Blum	1,725.00
Class 44:	
Sol. W. Ehrman	1,025.00
Jacob Levi, jr	974.00
Richard N. Nason *	950.00
Louis Will	1,000.00
Class 45:	
Sol. W. Ehrman	675.00
Jacob Levi, jr	650.00
Thos. H. Dowling *	637.00
Pacific Marine Supply Co	753.00
Class 46:	
Jacob Levi, jr. *	169.80
Thos. H. Dowling	174.00
Pacific Marine Supply Co	753.00
Class 47:	
Wakefield Baker	145.62
Geo. T. Hawley *	102.21
Miller, Sloss & Scott	135.80
Class 48:	
Manhattan Supply Co. *	352.20
Miller, Sloss & Scott	352.60
Class 49:	
Wakefield Baker	1,528.25
Geo. T. Hawley *	1,439.00
Dunham, Carrigan & Hayden Co.	1,531.25
Francis Harral	1,613.50
Miller, Sloss & Scott	1,756.87
Class 50:	
Wm. Walker	77.00
A. S. Carman *	74.00
Miller, Sloss & Scott	79.00
Class 51:	
Manhattan Supply Co	133.66
Miller, Sloss & Scott*	116.34
Class 52:	
W. H. Leahy	7,608.53
Wm. Walker *	6,987.58
J. H. Powell	8,049.10
A. S. Carman	7,080.40
Class 53:	
Dunham, Carrigan & Hayden Co.	202.35
I. S. Van Winkle & Co	249.25
Park Bro. & Co., Limited *	112.00
Miller, Sloss & Scott	200.00
Class 54:	
Dunham, Carrigan & Hayden Co.	193.25
I. S. Van Winkle & Co.*	180.62
Miller, Sloss & Scott	210.00
Class 55:	
Holbrook, Merrill & Stetson	118.94
H. D. Morton	143.90
Geo. L. Neville	118.94
Manhattan Supply Co	118.94
Merchant & Co	118.94
Miller, Sloss & Scott *	118.94
Class 56:	
S. C. Forsaith Machine Co	102.86
G. M. Josselyn Co.*	100.68

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated July 24, 1896; opened August 11, 1896.

Class 1:	
Chas. E. Pell	$12,760.00
Duke & Smith	22,100.00
Watson & Pittinger *	10,904.00
Geo. L. Neville	22,340.00
Class 2:	
Chas. E. Pell	930.00
Duke & Smith	900.00
Watson & Pittinger *	780.00
Geo. L. Neville	900.00
Class 3:	
Chas. E. Bell *	850.00
Duke & Smith	1,200.00
Watson & Pitttinger	900.00
Geo. L. Neville	1,200.00
Class 4†:	
Hodgman Rubber Co	1,911.00
Manhattan Supply Co	1,896.60
Class 5:	
Manhattan Supply Co.*	$632.14
Francis J. Dessoir	708.05
Geo. L. Neville	638.35
Class 6:	
Revere Rubber Co	1,180.30
New Jersey Car Spring and Rubber Co.*	1,144.69
Eureka Fire Hose Co	1,147.00
Class 7:	
New York Belting and Packing Co	324.50
New Jersey Car Spring and Rubber Co	315.00
Eureka Fire Hose Co	210.00
Boston Woven Hose and Rubber Co. *	126.00

* Accepted.

† Readvertised.

Schedule of proposals for supplies for the navy-yard, League Island, Pa., under Bureau advertisement dated July 22, 1896; opened August 11, 1896.

Class 1:	
S. C. Forsaith Machine Co	$447.00
Atlantic Works, Incorporated*	405.00
Pennsylvania Machine Co., Incorporated	520.00
P. P. Bowles	484.00
Geo. L. Neville	790.00
Class 2:	
S. C. Forsaith Machine Co	167.82
Goodell & Waters	160.00
Hill, Clark & Co	188.00
Atlantic Works, Incorporated	153.00
Pennsylvania Machine Co., Incorporated	185.00
P. P. Bowles *	149.00
Geo. L. Neville	215.00
Class 3:	
S. C. Forsaith Machine Co	182.00
Goodell & Waters	450.00
Class 3—Continued.	
Hill, Clark & Co	$234.00
Atlantic Works, Incorporated	187.00
Pennsylvania Machine Co., Incorporated	195.00
P. P. Bowles*	178.00
Geo. L. Neville	530.00
Class 4:	
S. C. Forsaith Machine Co	119.50
Atlantic Works, Incorporated	138.00
Pennsylvania Machine Co., Incorporated*	110.00
P. P. Bowles	124.00
Geo. L. Neville	285.00
Class 5:	
Humphreys & Stokes*	1,096.25
Nathan B. Gaskill	1,108.00
Geo. L. Neville	2,187.50

Schedule of proposals for supplies for the navy-yard, Norfolk, Va,, under Bureau advertisement dated July 24, 1896; opened August 11, 1896.

Class 1: †	
Duke & Smith	$20,880.00
Geo. L. Neville	20,820.00
Class 2:	
Duke & Smith	900.00
Geo. L. Neville*	750.00
Class 3:	
Nathan B. Gaskill*	$850.00
Duke & Smith	1,200.00
Geo. L. Neville	1,200.00

Schedule of proposals for supplies for the navy-yard, Portsmouth, N. H., under Bureau advertisement dated August 7, 1896; opened August 25, 1896.

Class 1:	
Chas. A. Wendell	$1,332.00
W. A. Hodgdon	1,341.00
Class 1—Continued.	
John H. Broughton *	$1,260.00
Geo. L. Neville	2,700.00

Schedule of proposals for supplies for the Mare Island Navy-Yard, under Bureau advertisement dated July 25, 1896; opened August 25, 1896.

Class 1:	
W. P. Fuller & Co.*	$1,095.00
Standard Oil Co	1,192.80
New York Lubricating Oil Co	1,800.00
Class 2:	
Wakefield Baker*	54.89
Geo. T. Hawley	56.43
Miller, Sloss & Scott	69.30
Class 3:	
Geo. D. Cooper *	125.15
Manhattan Supply Co	198.55
Miller, Sloss & Scott	196.78
Class 4:	
Wakefield Baker *	780.31
Geo. T. Hawley	803.21
Dunham, Carrigan & Hayden Co	872.94
Miller, Sloss & Scott	858.67
Class 5:	
A. S. Carman * ‡	87.00
Miller, Sloss & Scott	87.00
Class 6:	
Chas. C. Nichols*	136.31
S. C. Forsaith Machine Co	204.26
Geo. D. Cooper	164.06
Miller, Sloss & Scott	185.72
Class 7:	
Bolander & Perkins	5,449.41
Class 7—Continued.	
J. H. Powell	$4,368.44
A. S. Carman *	4,314.24
Wm. Walker §	4,060.06
Class 8:	
Geo. T. Hawley	179.96
Miller, Sloss & Scott *	156.62
Class 9:	
Bowers Rubber Co.*	196.50
Boston Woven Hose & Rubber Co.	342.50
Frank W. McNeal	340.00
Miller, Sloss & Scott	312.90
Class 10:	
S. C. Forsaith Machine Co	198.65
Chas. J. Hendry's Son & Co.*	138.80
Manhattan Supply Co	197.79
G. M. Josselyn & Co	197.79
Frank W. McNeal	182.17
Class 11:	
Bolander & Perkins	8,208.00
J. H. Powell *	6,206.00
A. S. Carman	7,422.40
William Walker	8,106.09
Class 12:	
Bolander & Perkins	615.00
A. S. Carman *	495.00
William Walker	987.50

Schedule of proposals for supplies for the Norfolk Navy-Yard, under Bureau advertisement dated August 12, 1896; opened September 1, 1896.

Class 1:	
Duke & Smith	$990.00
Geo. L. Neville	720.00
Wm. A. West*	592.00
Nathan B. Gaskill	900.00
Watson & Pittinger	1,120.00
J. Davis Reed	990.00
C. S. Connor	894.00
C. H. Ball	764.00
Class 2:	
Duke & Smith	970.20
Geo. L. Neville	940.50
Class 2—Continued.	
Nathan B. Gaskill	$891.00
Watson & Pettinger	970.20
J. Davis Reed	1,085.04
C. S. Connor*	792.00
C. H. Ball	1,089.00
Class 3:	
Duke & Smith	972.00
Geo. L. Neville	891.00
W. C. Cooke	891.00
C. S. Connor*	792.00

* Accepted. † No award. ‡ Tie bid. § Informal.

Schedule of proposals for supplies for the Washington Navy-Yard, under Bureau advertisement dated August 10, 1896; opened September 1, 1896.

Class 1:	
Park Bro. & Co	$1,288.59
Midvale Steel Co	1,932.90
J. B. Kendall*	1,104.88
Class 2:	
Bethlehem Iron Co	235.50
Midvale Steel Co	188.40
J. B. Kendall*	141.30
Class 3:	
James Clendenin* †	213.30
Joseph W. Richards	364.50
J. B. Kendall	213.30
Class 4:	
Abraham Westheimer	541.12
Max Frank*	526.50
S. C. Forsaith Machine Co	555.36
Wm. Hahn & Co	536.25
Brooklyn Hardware and Sporting Goods Co	573.50
Class 5:	
Midvale Steel Co*	305.30
J. B. Kendall	610.60
Class 6:	
Midvale Steel Co	1,634.51
J. B. Kendall*	932.76
Class 7:	
Bethlehem Iron Co	$347.50
Midvale Steel Co	278.00
J. B. Kendall*	208.50
Class 8:	
Morgan Engineering Co	7,956.20
R. H. Hood*	7,225.00
Keystone Structural Co	9,000.00
Class 9:	
Morgan Engineering Co*	6,686.46
Pawling & Harnischfeger	9,375.00
Class 10:	
American Steel Casting Co*	852.00
Midvale Steel Co	1,320.00
Class 11:	
National Leather Belting Co*	346.10
Frank W. McNeal	413.14
Graton & Knight Manufacturing Co	352.18
Washington Supply Co	436.94
Wm. Hahn & Co	438.80
Brooklyn Hardware and Sporting Goods Co	391.76
Class 12:	
Bethlehem Iron Co	8,169.60
Carnegie Steel Co*	7,814.40

Schedule of proposals for supplies for the Mare Island Navy-Yard, under Bureau advertisement dated August 5, 1896; opened September 8, 1896.

Class 1:	
General Electric Co	$8,104.75
California Electrical Works	10,129.25
Class 1—Continued.	
Electro Dynamic Co	$7,460.61
Chas. P. Fonda*	6,558.05

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated August 6, 1896; opened September 8, 1896.

Class 1.—Brushes:	
Herman Lohmeyer*	$9,988.70
Geo. F. Mitchell	10,586.68
John Tissot, jr	10,297.29
Frank W. McNeal	10,227.49
Manhattan Supply Co	10,955.00
Cavanagh Bros. & Knapp	10,642.23
Hanlon & Goodman	13,956.22
Wm. W. Parr	11,938.97
H Rosenthal & Bro	11,600.00
Class 2.—Alcohol:	
Smith, Kline & French Co	4,900.00
American Distributing Co.*	4,680.00
W. G. Moore	4,957.50
Geo. D. Bayard	5,020.00
Class 3.—White lead:	
Frank E. Clark	5,771.61
Chas. M. Childs & Co	5,980.00
Fiske Bros. Refining Co.*	5,730.00
R. P. Rowe	6,442.00
Class 3.—White lead—Continued.	
W. P. Fuller & Co	$5,769.00
The Kellogg Oil, Paint, and Varnish Co	5,887.50
Wetherell & Bro	6,625.00
Class 4.—Linseed oil:	
Chas. M. Childs & Co	1,280.00
Fiske Bros. Refining Co.*	1,182.00
R. P. Rowe	1,227.50
W. G. Moore	1,490.00
Class 5.—Bending machine:	
Wm. Sellers & Co	14,400.00
Bement, Miles & Co	13,800.00
Niles Tool Works Co.*	13,000.00
Class 6.—Steel castings:	
American Steel Casting Co.*	1,649.31
Penn Steel Casting and Machine Co	1,864.80
Midvale Steel Co	5,801.60

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated August 14, 1896; opened September 15, 1896.

Class 1:	
The Atlantic Dredging Co	$7,990.00
The W. H. Beard Dredging Co	8,160.00
Wm. Dubois*	4,624.00
Class 2:	
Bethlehem Iron Co	777.49
Carnegie Steel Co., Limited*	666.42
Frank H. Woodruff	866.34
Class 3:	
Carnegie Steel Co., Limited*	322.54
F. F. Fox	643.24
Frank Woodruff	368.62
Class 4:	
Benj. Atha & Illingworth Co	200.00
Park Bro. & Co., Limited	165.00
H. M. Sternbergh	180.00
Carnegie Steel Co., Limited*	150.00
F. F. Fox	310.00
Frank Woodruff	237.50
Class 5:	
Manhattan Supply Co	$984.00
E. B. Thurber	1,152.50
Graton & Knight Manufacturing Co	962.95
P. P. Bowles	944.20
Leo. Loeb	932.56
Francis J. Dessoir	1,077.85
Acme Belting Co	1,137.87
Geo. L. Neville	1,674.00
Chas. A. Moore	914.25
National Leather Belting Co	929.90
New York Leather Belting Co	994.00
Edward R. Laden	825.40
Frank W. McNeal	1,139.00
F. F. Fox	(‡)
Geo. E. Lane*	808.40
Brooklyn Hardware and Sporting Goods Co	951.89

*Accepted. † Tie bid. ‡ Informal.

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated August 14, 1896; opened September 15, 1896—Continued.

Class 6:	
Manhattan Supply Co	$331.20
E. B. Thurber	310.95
Geo. V. Cresson & Co	338.25
P. P. Bowles	419.00
Geo. L. Neville *	221.00
Chas. A. Moore	295.55
Frank W. McNeal	302.94
F. F. Fox	280.00
Class 7:	
Manhattan Supply Co	9,622.85
John A. Hardenbergh	9,585.00
Francis J. Dessoir	9,820.64
Fearing, Hall & Whiton	10,541.75
G. K. Sheridan & Co	10,129.20
Frank W. McNeal	10,241.25
Thomas Kelly *	8,983.75
Class 8:	
Manhattan Supply Co	1,862.00
John A. Hardenbergh	1,835.00
Saml. H. Munroe	1,757.00
Fearing, Hall & Whiton	2,445.00
G. K. Sheridan & Co	1,779.90
Thos. Kelly *	1,607.00
Class 9:	
Manhattan Supply Co	14,009.20
John A. Hardenbergh	13,992.00
Saml. H. Munroe	13,629.85
Francis J. Dessoir *	13,508.99
Fearing, Hall & Whiton	14,538.75
G. K. Sheridan & Co	15,098.65
Frank W. McNeal	13,651.90
Thomas Kelly	13,963.00
Class 10:	
Manhattan Supply Co	784.08
John A. Hardenbergh	871.20
Saml. H. Munroe	786.49
Francis J. Dessoir	806.83
Fearing, Hall & Whiton	871.20
G. K. Sheridan & Co	750.20
Cavanagh Bros. & Knapp *	739.88
Frank W. McNeal	803.44
Thos. Kelly	750.20
Class 11:	
E. B. Thurber	$612.75
M. Feigel	580.50
Francis J. Dessoir	591.25
Fiske Bros. Refining Co.*	575.12
Class 12:	
Manhattan Supply Co	2,309.66
E. B. Thurber	2,559.50
Francis J. Dessoir	2,264.45
Frank W. McNeal *	2,186.50
Class 13:	
Manhattan Supply Co	456.00
E. B. Thurber	476.25
Francis J. Dessoir	476.25
Frank W. McNeal	472.05
Wm. F. Wells *	450.00
Thos. M. Farley	462.00
Thos. Kelly	465.00
Brooklyn Hardware and Sporting Goods Co	477.00
Class 14:	
Manhattan Supply Co	347.20
E. B. Thurber	504.00
Francis J. Dessoir	344.00
Geo. L. Neville	392.00
Chas. A. Moore	328.00
National Leather Belting Co.*	270.00
D. B. Fleming	272.00
Brooklyn Hardware and Sporting Goods Co	378.00
Class 15:	
Manhattan Supply Co	218.00
E. B. Thurber	191.00
Frank W. McNeal	167.00
Class 16:	
Manhattan Supply Co.*	459.60
Francis J. Dessoir	557.90
Class 17:	
Manhattan Supply Co	458.29
E. B. Thurber	478.51
Geo. L. Neville	468.00
Chas. A. Moore *	436.70
Geo. B. Allen	486.62
Frank W. McNeal	460.85

Schedule of proposals for supplies for the Mare Island Navy-Yard, under Bureau advertisement dated August 22, 1896; opened September 22, 1896.

Class 1.—Steel plates:	
Park Bro. & Co., Limited	$4,760.00
Carnegie Steel Co.*	3,315.00
Miller, Sloss & Scott	3,893.00
Dunham, Carrigan & Hayden Co	3,808.00
Frank H. Woodruff	4,080.00
F. F. Fox	5,950.00
Geo. W. Gibbs Co	3,791.00
Class 2.—Steel angles:	
Carnegie Steel Co.*	432.00
Pacific Rolling Mill Co	495.00
Miller, Sloss & Scott	638.00
Dunham, Carrigan & Hayden Co	484.00
Frank H. Woodruff	504.00
F. F. Fox	720.00
Class 3.—Steel bars:	
Carnegie Steel Co.*	444.00
Miller, Sloss & Scott	553.15
F F. Fox	647.50
Class 4.—Steel angles:	
Carnegie Steel Co.*	1,014.00
Pacific Rolling Mill Co	1,248.00
Miller, Sloss & Scott	1,190.80
Dunham, Carrigan & Hayden Co	1,112.80
Frank H. Woodruff	1,404.00
F. F. Fox	1,820.00
Class 5.—Steel bars:	
Carnegie Steel Co.*	418.00
Class 5.—Steel bars—Continued.	
Pacific Rolling Mill Co	$475.00
Miller, Sloss & Scott	530.10
Geo. W. Gibbs Co	760.00
Class 6.—Steel bars:	
Carnegie Steel Co.*	121.00
Miller, Sloss & Scott	191.95
Dunham, Carrigan & Hayden Co	189.15
F. F. Fox	192.50
Class 7.—Rivet rod:	
Park Bro. & Co., Limited	427.50
Carnegie Steel Co.*	370.50
Pacific Rolling Mill Co	539.60
Dunham, Carrigan & Hayden Co	469.80
Frank H. Woodruff	570.00
Geo. W. Gibbs Co	665.00
Class 8.—Raisins:	
Saml. Foster *	40.00
Thos. H. Dowling	47.50
Jacob Levi, jr	55.00
Class 9.—Pickles:	
Saml. Foster	258.33
Thos. H. Dowling *	210.00
Jacob Levi, jr	225.00
Class 10.—Brawn:	
Saml. Foster *	185.12
Thos. H. Dowling	198.75
Jacob Levi, jr	200.00

* Accepted.

Schedule of proposals for supplies for the Washington Navy-Yard, under Bureau advertisement dated August 24, 1896; opened September 22, 1896.

Class 1.—Hardware:	
Francis Harral	$463.95
Jas. Reilly Repair and Supply Co	395.31
J. B. Kendall	452.14
F. F. Fox*	359.85
F. P. May & Co	421.89
Brooklyn Hardware and Sporting Goods Co	437.58
Class 2.—Files:	
J. Barton Smith Co	433.95
Frank W. McNeal	488.35
Henry F. Chorley	465.96
P. P. Bowles	482.97
Chas. A. Moore*	400.00
Jas. Reilly Repair and Supply Co	451.14
J. B. Kendall	451.14
F. F. Fox	514.90
F. P. May & Co	477.24
Brooklyn Hardware and Sporting Goods Co	449.29
Class 3.—Drills:	
Francis Harral	55.92
Frank W. McNeal	58.82
S. C. Forsaith Machine Co	64.87
Henry F. Chorley	61.54
Jas. Reilly Repair and Supply Co.*	51.35
J. B. Kendall	68.64
Geo. L. Neville	75.78
F. F. Fox	67.16
F. P. May & Co	61.86
Brooklyn Hardware and Sporting Goods Co	68.94
Class 4.—Poplar:	
Geo. H. Sheehan	486.95
W. T. Galliher & Bro	482.95
Thos. W. Smith	488.00
Reilly & Walker*	450.97
Grayson & Cain	493.86
Philip Walsh & Sons	472.17
Class 5.—Hickory:	
W. T. Galliher & Bro	85.00
Thos. W. Smith	100.00
Reilly & Walker	89.00
Class 5.—Hickory—Continued:	
Grayson & Cain	$885.00
Geo. L. Neville*	70.00
Class 6.—Georgia pine:	
Geo. A. Sheehan	153.50
W. T. Galliher & Bro	147.36
Thos. W. Smith	153.50
Reilly & Walker*	134.77
Grayson & Cain	153.50
Philip Walsh & Sons	193.55
Geo. L. Neville	212.76
Class 7.—White pine:	
Geo. A. Sheehan*	924.00
W. T. Galliher & Bro	965.00
Thos. W. Smith	1,020.00
Reilly & Walker	975.00
Grayson & Cain	975.00
Philip Walsh & Sons	1,028.00
Geo. L. Neville	1,035.00
Class 8:	
Geo. A. Sheehan	140.00
W. T. Galliher & Bro.*	129.50
Thos. W. Smith	133.50
Reilly & Walker	133.65
Grayson & Cain	145.00
Philip Walsh & Sons	265.00
Geo. L. Neville	350.00
Class 9:	
J. A. Haydon	172.00
J. B. Kendall	158.75
Geo. L. Neville*	150.00
J. T. Walker Sons	160.00
Brooklyn Hardware and Sporting Goods Co	193.55
Class 10:	
National Leather Belting Co.*	85.50
Geo. L. Neville	104.00
Leo. Loeb	95.25
Brooklyn Hardware and Sporting Goods Co	87.50
Class 11:	
American Hoist and Derrick Co.*	3,916.00
Alfred Box & Co	5,380.00

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated August 23, 1896; opened September 22, 1896.

Class 1:	
E. B. Thurber	$584.00
Manhattan Supply Co	534.40
Jacob Voelbel	519.20
Chas. A. Moore	498.32
Frank W. McNeal*	482.59
Cavanagh Bros. & Knapp	509.20
Class 2:	
John A. Hardenbergh	48.60
Manhattan Supply Co	42.12
Jas. Reilly Repair and Supply Co.*	31.50
Frank W. McNeal	35 91
Cavanagh Bros. & Knapp	32.04
Class 3:	
E. B. Thurber	69.00
John A. Hardenbergh	72.00
Manhattan Supply Co	64.00
Thos. Kelly	62.00
John P. Nawrath	64.00
Geo. L. Neville	100.00
Brooklyn Hardware and Sporting Goods Co	70.50
Cavanagh Bros. & Knapp*	61.60
Class 4:	
E. B. Thurber	79.20
Manhattan Supply Co	76.88
Jas. Reilly Repair and Supply Co	74.16
John P. Nawrath	79.20
Geo. L. Neville	144.00
Brooklyn Hardware and Sporting Goods Co*	69.12
Cavanagh Bros. & Knapp	80.64
Class 5:	
Manhattan Supply Co	42.50
Francis Harral	44.38
Thos. Kelly	45.00
Class 5—Continued.	
Jas. Reilly Repair and Supply Co.*	$39.28
Geo. L. Neville	52.50
Brooklyn Hardware and Sporting Goods Co	44.34
Class 6:	
Bramhall, Deane & Co	166.80
Manhattan Supply Co	213.12
Francis Harral	168.00
V. Clad & Sons	149.76
Duparquet, Huot & Moneuse Co	165.76
Cavanagh Bros. & Knapp*	141.60
Class 7:	
Bramhall, Deane & Co	544.68
Manhattan Supply Co	454.56
Francis Harral	513.36
V. Clad & Sons*	277.80
Duparquet, Huot & Moneuse Co	431.76
Cavanagh Bros. & Knapp	437.40
Class 8:	
Bramhall, Deane & Co	15.60
Manhattan Supply Co	8.40
Francis Harral*†	8.40
Class 9:	
Bramhall, Deane & Co	1,482.00
Manhattan Supply Co	1,540.88
Francis Harral	1,060.32
V. Clad & Sons	1.177.92
Duparquet, Huot & Moneuse Co	1,105.68
Cavanagh Bros. & Knapp*	648.00
Class 10:	
Bramhall, Deane & Co	675.60
Manhattan Supply Co	601.68
Francis Harral*	563.88
V. Clad & Sons	630.72
Jas. Reilly Repair and Supply Co	646.68

* Accepted.

† Tie bid.

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated August 23, 1896; opened September 22, 1896—Continued.

Class 10—Continued.	
Duparquet, Huot & Moneuse Co	$593.52
Cavanagh Bros. & Knapp	723.00
Class 11:	
Bramhall, Deane & Co	558.84
Manhattan Supply Co.*	479.16
Francis Harral	571.92
V. Clad & Sons	555.48
Jas. Reilly Repair and Supply Co	518.16
Duparquet, Huot & Moneuse Co	530.64
Cavanagh Bros. & Knapp	496.80
Class 12:	
Bramhall, Deane & Co	20.16
Manhattan Supply Co	16.56
Francis Harral	13.68
V. Clad & Sons	20.16
Frank W. McNeal*	11.52
Cavanagh Bros. & Knapp	17.28
Class 13:	
E. B. Thurber	95.00
Jno. A. Hardenbergh*	90.00
Manhattan Supply Co	100.00
Francis Harral	93.00
Jas. K. Shaw	92.50
Brooklyn Hardware and Sporting Goods Co	110.00
Class 14:	
John A. Hardenbergh	100.00
Manhattan Supply Co	90.00
Francis Harral	95.00
James K. Shaw	95.00
Jas. Reilly Repair and Supply Co	94.00
John Wanamaker*	82.00
Brooklyn Hardware and Sporting Goods Co	85.00
Class 15:	
John A. Hardenbergh	100.00
Manhattan Supply Co.*	77.00
Francis Harral	95.00
James K. Shaw	95.00
Jas. Reilly Repair and Supply Co	94.00
John Wanamaker	82.00
Brooklyn Hardware and Sporting Goods Co	83.33
Class 16:	
E. B. Thurber*	465.00
John A. Hardenbergh	495.00
Manhattan Supply Co	482.00
Francis Harral	498.00
V. Clad & Sons	480.83
Jas. K. Shaw	487.50
Cavanagh Bros. & Knapp	520.00
Class 17:	
Royal Copenhagen Porcelain Co.*	300.50
Class 18:	
James K. Shaw*	251.76
Class 19:	
Boston Woven Hose and Rubber Co	1,220.00
Francis Harral	1,207.00
Jas. Reilly Repair and Supply Co.*	1,177.50
Eureka Fire Hose Co	1,200.00
New Jersey Car Spring and Rubber Co	1,207.50
Brooklyn Hardware and Sporting Goods Co	1,237.50
F. F. Fox	1,200.00
Class 20:	
E. B. Thurber	176.40
Boston Woven Hose and Rubber Co	216.00
John A. Hardenbergh	129.60
Manhattan Supply Co	122.40
Jas. Reilly Repair and Supply Co	161.28
Chas. A Moore*	120.24
Frank W. McNeal	134.64
Eureka Fire Hose Co	136.80
New Jersey Car Spring and Rubber Co	143.28
Class 21:	
E. B. Thurber	96.00
Boston Woven Hose and Rubber Co	60.00
John A. Hardenbergh	60.00
Manhattan Supply Co	64.80
Class 21—Continued.	
Jas. Reilly Repair and Supply Co	$60.00
Frank W. McNeal*	59.88
Eureka Fire Hose and Rubber Co	84.00
New Jersey Car Spring and Rubber Co	84.00
Class 22:	
E. B. Thurber	27.50
Boston Woven Hose and Rubber Co	27.50
Manhattan Supply Co	21.00
Jas. Reilly Repair and Supply Co.*	13.44
Frank W. McNeal	40.00
Eureka Fire Hose Co	18.75
New Jersey Car Spring and Rubber Co	21.88
Class 23:	
E. B. Thurber	2,200.00
Boston Woven Hose and Rubber Co	880.00
Francis Harral*	664.00
Jas. Reilly Repair and Supply Co	1,700.00
Frank W. McNeal	669.60
Eureka Fire Hose Co	2,000.00
New Jersey Car Spring and Rubber Co	1,400.00
Brooklyn Hardware and Sporting Goods Co	1,300.00
F. F. Fox	880.00
Columbia Rubber Works Co	960.00
Class 24:	
E. B. Thurber	62.00
S. C. Forsaith Machine Co	61.00
Francis J. Dessoir*	53.50
Fiske Bros. Refining Co	54.00
Brooklyn Hardware and Sporting Goods Co	68.00
Shoemaker & Busch	57.00
Class 25:	
E. B. Thurber	72.00
S. C. Forsaith Machine Co	81.00
Manhattan Supply Co.*	53.00
Jas. Reilly Repair and Supply Co	56.00
Frank W. McNeal	72.00
Geo. L. Neville	55.50
Fiske Bros. Refining Co	75.00
Shoemaker & Busch	68.00
Class 26:	
E. B. Thurber	196.50
John A. Hardenbergh	187.50
Manhattan Supply Co	182.25
Francis Harral*	176.25
Jas. Reilly Repair and Supply Co	185.63
Chas. A. Moore	202.50
Frank W. McNeal	189.00
Brooklyn Hardware and Sporting Goods Co	197.25
Class 27:	
E. B. Thurber	266.94
Manhattan Supply Co	237.20
Francis Harral	226.80
Jas. Reilly Repair and Supply Co*	222.22
Brooklyn Hardware and Sporting Goods Co	276.68
Cavanagh Bros. & Knapp	235.60
Class 28:	
Manhattan Supply Co	840.00
Chas. A. Moore	947.16
Frank W. McNeal*	642.00
Class 29:	
Chas. A. Moore	136.80
Brooklyn Hardware and Sporting Goods Co	117.48
Manhattan Supply Co	136.80
F. F. Fox*	100.68
Class 30:	
E. B. Thurber	1,238.40
Manhattan Supply Co.*	1,061.28
Jas. Reilly Repair and Supply Co	1,170.40
Francis J. Dessoir	1,069.92
Geo. L. Neville	1,072.80
Cavanagh Bros. & Knapp	1,177.92
Class 31:	
Bramhall, Deane & Co	714.00
V. Clad & Sons*	658.50
Duparquet, Huot & Moneuse Co	810.00

* Accepted.

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated August 23, 1896; opened September 22, 1896—Continued.

Class 32:	
Bramhall, Deane & Co	$750.00
Manhattan Supply Co	804.00
V. Clad & Sons	645.00
Jas. Reilly Repair and Supply Co	600.00
General Equipment and Engineering Co.*	522.00
Frank W. McNeal	738.00
Duparquet, Huot & Moneuse	750.00
Class 33:	
Manhattan Supply Co	5,729.83
Columbia Rubber Works Co.*	5,518.36
Class 34:	
J. H. Sternbergh*	138.50
Class 35:	
J. B. Kendall	347.46
J. H. Sternbergh*	341.67
F. F. Fox	492.24
Class 36:	
E. B. Thurber	328.06
Pancoast & Rogers	291.83
Manhattan Supply Co	304.14
Frank H. Woodruff	319.87
J. B. Kendall	263.39
Brooklyn Hardware and Sporting Goods Co	309.32
J. H. Sternbergh	336.71
F. F. Fox*	242.44
Class 37.†	
Class 38:	
Carnegie Steel Co	721.86
F. F. Fox*	421.23
Class 39:	
Manhattan Supply Co	4,895.32
Carnegie Steel Co	2,976.88
Frank H. Woodruff	2,566.73
Geo. L. Neville*	2,249.20
F. F. Fox	15,876.72
Class 40:	
Pancoast & Rogers*	2,107.73
Allison Manufacturing Co	2,521.05
Manhattan Supply Co	8,231.40
Geo. L. Neville	2,482.50
Tyler Tube and Pipe Co	4.045.10
Class 41:	
E. B. Thurber	480.00
O'Jaffe & Pinkus	494.40
Manhattan Supply Co.*	456.00
Thomas Kelley	660.00
Francis J. Dessoir	507.60
Frank W. McNeal	468.00
Geo. L. Neville	588.00
Cavanagh Bros. & Knapp	466.80
Class 42:	
E. B. Thurber	2,425.00
James A. Hardenbergh	2,300.00
Manhattan Supply Co.*	2,106.00
Thomas Kelly	2,500.00
Francis J. Dessoir	2,247.00
Frank W. McNeal	2,299.00
Geo. L. Neville	2,160.00
Wm. H. Horstmann & Co.*	1,825.00
Cavanagh Bros. & Knapp	1,840.00
Class 43:	
W. F. Rockwell*	4,000.00
Francis J. Dessoir	5,449.00
Francis T. Witte Hardware Co	5,500.00
Class 44:	
Francis J. Dessoir	12,519.00
Fiske Bros. Refining Co	12,585.00
Austin P. Brown	11,625.00
Sam'l Heymann*	11,325.00
Class 45:	
New York Lubricating Oil Co	1,800.00
Binghampton Oil Refining Co	2,150.00
Swan & Finch Co.*	1.785.00
Class 46:	
Geo. L. Neville	1.750.00
Fiske Bros. Refining Co.*	1,668.75
Austin P. Brown	1,750.00
Class 47:	
E. B. Thurber	681.00
S. C. Forsaith Machine Co	624.00
Solomon & Schwartz	650.00
Class 47—Continued.	
Jas. Reilly Repair and Supply Co.*	$624.00
Alexander M. Fraser	634.00
Geo. L. Neville	675.00
Shoemaker & Busch	645.00
Class 48:	
Treadwell Harris Baking Co.*	1,010.00
Class 49:	
Francis J. Dessoir	13,699.40
Austin P. Brown	14,940.00
Fred. Figge*	12,660.00
C. J. Caughey	13,300.00
Class 50;	
F. Foehrenbach & Co	847.37
H. J. Heinz & Co.*	450.00
Sidney Thursby	645.00
Class 51:	
Westerhoff Bros. & Napier*	4,950.00
Thomas Kelly	5,098.50
Bentley Bros	5,375.00
John G. Shedd	4,987.00
W. F. Rockwell	5,250.00
Wm. H. Horstmann Co	5,100.00
Class 52:	
Manhattan Supply Co	172.00
Trisdorfer & Co.*	150.00
O'Falk & Co	168.75
Wm. H. Horstmann Co	170.00
Class 53:	
Thomas Kelly*	450.00
Wm. H. Horstmann Co	562.50
Class 54:	
Conshohocken Woolen Co.*	19,012.50
Adam Reill	19,950.00
B. Y. Pippey & Co	19,700.00
Class 55:	
Johnathan Nathan	535.40
Manhattan Supply Co.*	496.20
Thomas Kelly	510.00
John P. Namath	497.50
Frank W. McNeal	512.10
Martin L. Horn	591.90
Class 56:	
Brainard & Armstrong Co	464.81
John T. Brooks*	401.25
Wm. H. Horstmann Co	430.50
Marc M. Michael	504.83
Class 57:	
Manhattan Supply Co.*	696.50
Thomas Kelly	715.00
Class 58:	
Thomas Kelly	207.60
Wm. H. Horstmann Co.*	192.00
Class 59:	
Thomas Kelly*	140.00
Wm. H. Horstmann Co	155.00
Class 60:	
Gustave A. Jahn	1,275.00
Francis J. Dessoir*‡	1,435.00
John J. O'Rorke	1,317.50
Wm. G. Ahrens	1,467.50
E. F. Cuming	1,498.75
C. J. Caughey	1,357.50
Class 61:	
E. B. Thurber	133.60
Manhattan Supply Co	133.60
Jas. Reilly Repair and Supply Co	110.79
Morse Burtis	155.50
Frank H. Woodruff*	102.68
Chas. A. Moore	131.16
Frank W. McNeal	208.15
Geo. L. Neville	135.86
Brooklyn Hardware and Sporting Goods Co	195.50
F. F. Fox	133.99
Class 62:	
S. C. Forsaith Machine Co	2,947.40
Manhattan Supply Co	1,632.71
Frank H. Woodruff	1,695.87
Chas. A. Moore	1,726.73
Geo. L. Neville	1,876.58
Fiske Bros. Refining Co	3,108.41
F. F. Fox*	1,606.50
Joseph A. McKee	1.703.20

* Accepted. † No bids received. ‡ Awarded by sample.

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated August 23, 1896; opened September 22, 1896—Continued.

Class 63:	
Manhattan Supply Co.*	$88.95
Jas. Reilly Repair and Supply Co	100.95
Francis J. Dessoir	93.00
Chas. A. Moore	94.05
Geo. L. Neville	97.50
Fiske Bros. Refining Co	90.00
Joseph A. McKee	112.50
Colwell Lead Co	93.75
Class 64:	
Francis Harral *	440.15
Jas. Reilly Repair and Supply Co	543.22
Class 65:	
National Leather Belting Co	1,329.70
Acme Belting Co	2,120.05
Leo Loeb	2,037.50
Brooklyn Hardware and Sporting Goods Co	1,897.29
New York Leather Belting Co.*	1,628.22
F. F. Fox	2,470.60
John J. Hetzel	1,679.50
Class 66:	
Frank W. McNeal*	631.20
Class 67:	
Jas. Reilly Repair and Supply Co.*	81.68
Class 68: †	
Class 69:	
E. S. Ritchie & Sons*	4,833.00
Class 70:	
Wm. Porters Sons	214.50
Chas. A. Moore	186.00
Porters Son & Co	233.25
E. Hazard Aikman *	180.75
Class 71:	
Manhattan Supply Co	380.00
John Bliss & Co.*	360.00
Frank W. McNeal	396.00
Class 72:	
E. S. Ritchie & Sons*	1,000.00
Class 73:	
Wm. Porters Sons	3,186.64
Porters Son & Co.*	2,885.50
E. Hazard Aikman	3,319.80
Class 74:	
Manhattan Supply Co	157.50
Francis Harral	151.35
Jas. Reilly Repair and Supply Co	131.30
Class 75: ‡	
John A. Hardenbergh	387.50
Francis Harral	396.00
Thomas Kelly	385.00
F. F. Fox	162.50
Cavanagh Bros. & Knapp	372.50
Class 76:	
Alonzo E. Deitz	359.58
Manhattan Supply Co	382.50
Francis Harral	358.44
Chas. A. Moore	376.80
Brooklyn Hardware and Sporting Goods Co	377.34
F. F. Fox *	307.50
Class 77:	
Jas. Reilly Repair and Supply Co	36.94
Chas. A. Moore	43.60
Frank W. McNeal	37.30
Brooklyn Hardware and Sporting Goods Co.*	36.30
Class 78:	
Watson & Pittinger	752.00
E. J. Barrett & Co	810.00
Geo. L. Neville	1,400.00
Wm. E. Uptegrove & Bro	788.00
Chas. E. Pell *	710.00
Class 79:	
Watson & Pittinger	50.40
E. J. Barrett & Co	45.00
Chas. E. Pell *	44.55
Class 80:	
Watson & Pittinger	1,200.00
E. J. Barrett & Co.*	1,075.00
Geo. L. Neville	1,495.00
Wm. E. Uptegrove & Bro	1,125.00
Chas. E. Pell	1,312.50
Class 81:	
Watson & Pittinger	$3,535.00
E. J. Barrett & Co.*	3,050.00
Wm. E. Uptegrove & Bro	3,350.00
Chas. E. Pell	3,377.50
Class 82:	
Watson & Pittinger	924.00
E. J. Barrett & Co.*	660.40
Chas. E. Pell	935.00
Class 83:	
Watson & Pittinger	1,360.00
Geo. L. Neville	1,397.00
Chas. E. Pell	1,520.00
Wm. E. Uptegrove & Bro. *	1,160.00
Class 84:	
Watson & Pittinger	990.00
E. J. Barrett & Co	1,125.00
Cavanagh Bros. & Knapp *	940.00
Class 85:	
E. B. Thurber	140.00
Watson & Pittinger	120.00
E. J. Barrett & Co	90.00
Geo. L. Neville *	80.00
Cavanagh Bros. & Knapp	92.00
Chas. E. Pell	140.00
Class 86:	
E. B. Thurber	90.00
Manhattan Supply Co	99.00
Jas. Reilly Repair and Supply Co	92.00
Chas. A. Moore	95.90
Frank W. McNeal *	87.50
Fiske Bros. Refining Co	95.00
Brooklyn Hardware and Sporting Goods Co	94.00
F. F. Fox	97.50
Joseph A. McKee	103.00
Colwell Lead Co	95.00
Class 87:	
Solomon & Schwartz	575.00
Baer Bros	(§)
Geo. L. Neville	390.00
Shoemaker & Busch	489.00
James Langmuir *	281.50
Class 88:	
Edward F. Keating	342.72
Manhattan Supply Co	363.93
Jas. Reilly Repair and Supply Co.*	340.85
Morse Burtis	345.41
Frank W. McNeal	368.35
Brooklyn Hardware and Sporting Goods Co	360 08
Colwell Lead Co	380.92
Class 89:	
Manhattan Supply Co	55.56
Jas. Reilly Repair and Supply Co	37.40
Frank W. McNeal	38.15
Brooklyn Hardware and Sporting Goods Co.*	36.92
F. P. May & Co	43.88
Joseph A. McKee	52.28
Class 90:	
Manhattan Supply Co	497.38
Francis Harral *	433.34
Jas. Reilly Repair and Supply Co	557.35
Brooklyn Hardware and Sporting Goods Co	643.07
Class 91:	
Manhattan Supply Co	169.80
Jas. Reilly Repair and Supply Co	178.40
John Wanamaker	228.00
Francis J. Dessoir	178.40
Frank W. McNeal	364.00
Brooklyn Hardware and Sporting Goods Co	234.00
Cavanagh Bros. & Knapp	178.80
Class 92:	
S. C. Forsaith Machine Co	210.00
Francis J. Dessoir	264.00
National Leather Belting Co.*	201.00
Geo. L. Neville	324.00
Brooklyn Hardware and Sporting Goods Co	234.00
F. F. Fox	294.00

* Accepted. † No bids received. ‡ No award. § Informal.

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated August 23, 1896; opened September 22, 1896—Continued.

Class 93:	
Boston Woven Hose and Rubber Co	$615.00
Francis Harral	(†)
Jas. Reilly Repair and Supply Co.	504.39
New Jersey Car Spring and Rubber Co	521.50
F. F. Fox*	453.00
Class 94:	
S. C. Forsaith Machine Co	206.88
Manhattan Supply Co	144.00
Francis Harral	162.84
Jas. Reilly Repair and Supply Co.	143.80
Frank W McNeal	128.88
Class 94—Continued:	
Geo. L. Neville	$337.68
J. B. Kendall	168.40
Brooklyn Hardware and Sporting Goods Co.*	121.56
Class 95:	
C. B. Orcutt	34,800.00
Peale, Peacock & Kerr	32,400.00
Francis J. Dessoir	31,200.00
Davis Coal and Coke Co	32,400.00
Do	34,800.00
Clearfield Bituminous Coal Corporation	32,400.00
David Duncan & Son*	31,560.00

Schedule of proposals for supplies for the League Island Navy-Yard, under Bureau advertisement dated September 10, 1896; opened September 29, 1896.

Class 1:	
J. Jacob Shannon & Co	$246.76
Paul J. Field	164.48
Manhattan Supply Co	178.49
Jas. Reilly Repair and Supply Co.	124.42
Henry F. Chorley	156.95
Chas. J Field	155.35
Geo. L. Neville	226.72
Class 2:	
R. A. & J. J. Williams	$3,215.13
Charles Benton	3,218.52
Elias Pohl	3,427.87
Duke & Smith	3,794.47
Charles Este*	3,211.82
Nathan B. Gaskill	3,482.08
Geo. L. Neville	3,582.82

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated September 17, 1896; opened October 6, 1896.

Class 1:	
Francis Harral	$79.50
Frank M. McNeal	82.50
New Jersey Car Spring and Rubber Co	78.48
William Bowles	162.00
Manhattan Supply Co	96.60
Jas. Reilly Repair and Supply Co.	89.28
Class 2:	
Shoemaker & Busch	743.50
Chas. M. Childs & Co	958.00
Chas. H. Gillespie & Sons	(†)
John Lucas & Co	846.27
James Langmuir*	671.35
Fiske Bros. Refining Co	729.20
Murphy Varnish Co	(†)
Class 3:	
General Equipment and Engineering Co	3,305.00
Francis J. Dessoir	3,360.00
Frank W. McNeal	3,410.00
Shoemaker & Busch*	3,245.50
William Bowles	4,500.00
Austin P. Brown	3,362.50
Fiske Bros. Refining Co	3,475.00
E. B. Thurber	3,345.00
S. C. Forsaith Machine Co	3,437.50
Jas. Reilly Repair and Supply Co.	3,437.50
Class 4:	
Shoemaker & Busch	3,075.00
Austin P. Brown*	2,900.50
M. Feigal	3,050.00
Fiske Bros. Refining Co	2,974.50
E. B. Thurber	3,098.00
James Reilly Repair and Supply Co	2,970.50
Class 5:	
R. P. Rowe	$4,900.00
Shoemaker & Busch	5,090.00
Wetherell & Bro	4,562.50
Austin P. Brown	4,630.00
James Langmuir	4,489.80
Fiske Bros. Refining Co.*	4,398.00
Class 6:	
Anglo American Varnish Co	3,420.00
Shoemaker & Busch	3,240.00
Chas. M. Childs & Co	3,120.00
Chas. H. Gillespie & Sons	3,310.00
Austin P. Brown	3,950.00
John Lucas & Co	4,040.00
James Langmuir*	3,100.00
Fiske Bros. Refining Co	4,380.00
Murphy Varnish Co	4,290.00
Excelsior Varnish Works	3,400.00
E. B. Thurber	3,115.00
Class 7:	
R. P. Rowe	1,185.00
Shoemaker & Busch	1,485.00
Austin P. Brown*	1,170.00
Fiske Bros. Refining Co	1,230.00
Class 8:	
Austin P. Brown	86,750.00
B. Z. Pippey & Co.*	72,400.00
Conshohocken Woolen Co	77,875.00
Wendall, Fay & Co	79,190.00
Class 9:	
E. Hazard Aikman	1,139.19
Wm. Porter's Sons*	1,106.05
Porter's Son & Co	1,199.68
Jas. Reilly Repair and Supply Co.	1,369.53

Schedule of proposals for supplies for the navy-yard, Norfolk, Va., under Bureau advertisement dated September 16, 1896; opened October 6, 1896.

Class 1:	
Henry F. Chorley	$174.48
Manhattan Supply Co	183.60
Porter McNeal & Co	198.00
Frank W. McNeal	204.00
Ira B. White	189.36
Brooklyn Hardware and Sporting Goods Co	179.76
Geo. L Neville*	96.00
E. B. Thurber	179.76
Class 2:	
Francis Harral*	$178.68
Porter McNeal & Co	283.56
Ira B. White	412.50
Brooklyn Hardware and Sporting Goods Co	178.95
Geo. L. Neville	276.00
Class 3:	
Mayer & Co	185.60
F. F. Fox	187.30

* Accepted.

† Informal.

Schedule of proposals for supplies for the navy-yard, Norfolk, Va., under Bureau advertisement dated September 16, 1896; opened October 6, 1896—Continued.

Class 3—Continued.	
Henry F. Chorley	$188.59
Henry Walke	220.00
Porter McNeal & Co	168.58
M. M. Buck Manufacturing Co	368.80
J. B. Kendall	182.50
E. V. White & Co	260.70
Morse Burtis	196.90
Ira B. White	198.85
Brooklyn Hardware and Sporting Goods Co	182.40
Jas. Reilly Repair and Supply Co.*	149.43
Geo. L. Neville	183.00
Class 4:	
Francis Harral	59.04
Porter McNeal & Co	73.68
Ira B. White	67.44
Brooklyn Hardware and Sporting Goods Co	76.12
Jas. Reilly Repair and Supply Co	68.10
Geo. L. Neville*	54.00
E. B. Thurber	77.04
Class 5:	
Graton & Knight Manufacturing Co	553.00
Mayo & Co	660.00
Page Belting Co	561.60
F. F. Fox	504.35
Henry F. Chorley	648.75
William Bowles	1,872.00
Manhattan Supply Co	755.30
Henry Walke	754.00
Leo Loeb	528.00
Porter McNeal & Co	737.50
Frank W. McNeal Co	586.50
General Equipment and Engineering Co	631.75
M. M. Buck Manufacturing Co	1,123.20
E. V. White & Co	765.00
Morse Burtis	563.00
Brooklyn Hardware and Sporting Goods Co.*	500.00
Geo. L. Neville	552.40
Class 6:	
Graton & Knight Manufacturing Co.*†	58.50
Mayer & Co	65.25
F. F. Fox	63.00
William Bowles	85.50
Henry Walke	61.87
Leo Loeb	67.50
Porter McNeal & Co	63.00
Frank W. McNeal	60.75
General Equipment and Engineering Co.	71.95
M. M. Buck Manufacturing Co	90.00
E. V. White & Co	81.00
Ira B. White	71.55
Brooklyn Hardware and Sporting Goods Co.†	58.50
Jas. Reilly Repair and Supply Co	60.30
Geo. L. Neville	67.50
E. B. Thurber	81.00
Class 7:	
Duke & Smith	1,215.00
C. R. Beell	980.00
Geo. L. Neville*	944.00
Class 8:	
C. C. Knight & Bro	(‡)
Mayer & Co	1002.50
F. F. Fox	1,006.80
Henry Walke	798.00
J. H. Sternbergh*	779.00
Porter, McNeal & Co	871.50
M. M, Buck Manufacturing Co	1,326.50
J. B. Kendall	822.70
Geo. L. Neville	806.55
Class 9:	
James Clendenin*	2,118.00
Mayer & Co	2,750.00
Joseph Rechert	2,240.00
Austin P. Brown	2,550.00
J. B. Kendall	2,248.00
S. C. Forsaith Machine Co	2,310.50
Geo. L. Neville	2,300.00
E. B. Thurber	2,440.00
Class 10:	
James Clendenin*	$1,304.00
Mayer & Co	1,490.00
Joseph Rechert	1,340.00
Austin P. Brown	1,462.50
Manhattan Supply Co	1,397.00
Henry Walke	1,660.00
J. B. Kendall	1,320.00
S. C. Forsaith Machine Co	1,385.00
Geo. L. Neville	1,500.00
E. B. Thurber	1,440.00
Class 11:	
James Clendenin*	374.00
Mayer & Co	650.00
Austin P. Brown	700.00
Henry Walke	460.00
J. B. Kendall	416.00
S. C. Forsaith Machine Co	425.00
Geo. L. Neville	500.00
E. B. Thurber	819.00
Class 12:	
James Clendenin*	89.90
C. C. Knight & Bros	105.00
F. F. Fox	97.50
Manhattan Supply Co	117.00
Henry Walke	102.50
Frank W. McNeal	92.30
J. B. Kendall	93.50
Brooklyn Hardware and Sporting Goods Co	95.00
S. C. Forsaith Machine Co	95.50
Jas. Reilly Repair and Supply Co	90.70
Geo. L. Neville	160.00
E. B. Thurber	108.75
Class 13:	
Mayer & Co	895.50
F. F. Fox	507.66
Francis Harral	691.64
Wm. Bowles	897.05
Henry Walke	867.30
Porter, McNeal & Co	570.89
E. V. White & Co	786.20
Ira B. White	1,065.50
Jas. Reilly Repair and Supply Co	760.10
Geo. L. Neville	658.40
Class 14:	
Shoemaker & Busch	107.00
Frank W. McNeal	94.25
M. Feigel*	64.29
Ira B. White	96.10
Geo. L. Neville	83.50
E. B. Thurber	91.30
Class 15:	
Mayer & Co	608.75
Manhattan Supply Co	436.23
Henry Walke	422.60
Porter, McNeal & Co	427.98
M. M. Buck Manufacturing Co	852.60
E. V. White & Co	515.65
Morse Burtis	405.63
Brooklyn Hardware and Sporting Goods Co.*	266.28
S. C. Forsaith Machine Co	466.55
Jas. Reilly Repair and Supply Co	441.74
Geo. L. Neville	374.70
Class 16:	
Mayer & Co	672.30
F. F. Fox	522.76
Henry F. Chorley	510.30
J. Burton Smith Co	505.49
Manhattan Supply Co	650.55
Henry Walke	560.19
Frank W. McNeal	528.55
M. M. Buck Manufacturing Co	625.20
J. B. Kendall	500.31
Ira B. White	522.99
Brooklyn Hardware and Sporting Goods Co	515.81
Jas. Reilly Repair and Supply Co.*	495.66
Geo. L. Neville	583.00
Class 17:	
Mayer & Co	270.00
Henry F. Chorley	209.10
Francis Harral	202.50
Manhattan Supply Co.*	202.20
Henry Walke	238.50

* Accepted. † Tie bid. ‡ Informal.

Schedule of proposals for supplies for the navy-yard, Norfolk, Va., under Bureau advertisement dated September 16, 1896; opened October 6, 1896—Continued.

Class 17—Continued	
Porter, McNeal & Co	$223.50
Ira B White	233.70
Jas. Reilly Repair and Supply Co	216.00
Geo. L. Neville	219.90
E. B. Thurber	217.20
Class 18:	
Mayer & Co	222.50
F. F. Fox	174.80
McFadden Co	189.75
Henry F. Chorley	183.35
Francis Harrall	182.95
Shoemaker & Busch	198.50
Manhattan Supply Co	178.40
Henry Walke	204.00
Porter, McNeal & Co	197.50
Frank W. McNeal	176.90
General Equipment and Engineering Co	205.00
M. Feigel	192.20
J. B. Kendall	196.50
Ira B. White*	147.20
Brooklyn Hardware and Sporting Goods Co	186.25
S. C. Forsaith Machine Co	218.50
Jas. Reilly Repair and Supply Co	166.00
Geo. L. Neville	191.00
E. B. Thurber	206.25

Class 19:	
Mayer & Co	$741.10
McFadden Co	681.94
Francis Harral*	543.95
Manhattan Supply Co	715.55
Henry Walke	831.75
Porter, McNeal & Co	642.27
M. M. Buck Manufacturing Co	901.00
J. B. Kendall	671.65
Ira B. White	723.32
Brooklyn Hardware and Sporting Goods Co	670.23
Jas. Reilly Repair and Supply Co	699.48
Geo. L. Neville	694.40
E. B. Thurber	631.32
Class 20:	
Francis J. Dessoir	154.95
Mayer & Co	175.00
Shoemaker & Busch*	132.50
William Bowles	175.00
Porter, McNeal & Co	250.00
M. Feigel	139.95
M. M. Buck Manufacturing Co	225.00
E. V. White & Co	175.00
S. C. Forsaith Machine Co	137.50
Jas. Reilly Repair and Supply Co	142.00
Geo. L. Neville	137.50
E. B. Thurber	165.00

Schedule of proposals for supplies for the navy-yard, Washington, D. C., under Bureau advertisement dated September 26, 1896; opened October 13, 1896.

Class 1.—2 belt power elevators:	
Smith Hill Elevator Co	$1,400.00
The Ellicott Machine Co	2,030.00
J. W. Paxson & Co.*	1,045.00
The Albro Clem Elevator Co	1,685.00
Morse, Williams & Co	1,180.00

Class 2.—3 iron cupolas:	
The Whiting Foundry Equipment Co.*	$2,916.00
J. W. Paxson & Co	3,296.55
Class 3.—800 tons bituminous coal:	
Frank Lily	2,600.00
Wm. L. Read*	2,136.00
Austin P. Brown	2,520.00

Schedule of proposals for supplies for the Mare Island Navy-Yard, under Bureau advertisement dated September 14, 1896; opened October 13, 1896.

Class 1.—Brushes:	
Fred. B. Dallam	$7,180.30
Wm. P. Fuller & Co	4,445.63
Geo. F. Mitchell	4,377.30
Chas. Beissbarth*	3,846.90
P. Cavanaugh	4,182.90
Class 2.—Corn brooms:	
Louis E. Lake	114.50
Louis Feldman	102.00
Fred. B. Dallam*	92.00
C. C. Bruce	140.00
Class 3.—Corn brooms:	
Louis E. Lake	70.80
Chas. P. Fonda*	39.00
Louis Feldman	68.40
Fred. B. Dallam	74.88
C. C. Bruce	84.00
Class 4.—Nuts, etc.:	
Manhattan Supply Co	375.30
Geo. T. Hawley	369.00
Edward D. Flint*	257.32
Wakefield Baker	347.00
Dunham, Carrigan & Hayden Co	370.64
Miller, Sloss & Scott	408.70
Class 5.—Hardware:	
Manhattan Supply Co	570.45
Geo. T. Hawley	516.95
M. M. Buck Manufacturing Co	631.60
Wakefield Baker	485.75
Dunham, Carrigan & Hayden Co.*	467.35
Miller, Sloss & Scott	518.67
Class 6.—Hand lamps:	
Louis E. Lake	274.80
C. C. Bruce	201.60
Porter's Son & Co	108.00
Wakefield Baker*	54.00
Miller, Sloss & Scott	158.16
F. M. McWilliams	122.40

Class 7.—Lacing leather:	
Louis E. Lake	$51.00
Chas. C. Nichols	49.50
C. C. Bruce*	27.00
M. M. Buck Manufacturing Co	60.00
Wakefield Baker	57.00
Dunham, Carrigan & Hayden Co	46.50
Miller, Sloss & Scott	52.32
F. M. McWilliams	63.00
Class 8.—White ash:	
A. S. Carman	1,305.00
Wm. H. Leahy*	1,215.00
E. A. Howard & Co	1,312.50
J. H. Powell	1,402.50
Wm. Walker	1,245.00
Class 9.—Oregon pine:	
A. S. Carman*	980.00
Wm. H. Leahy	990.00
J. H. Powell	1,060.00
Wm. Walker	1,062.50
Class 10.—Hickory:	
A. S. Carman	2,925.00
Wm. H. Leahy*	2,847.00
E. A. Howard & Co	4,725.00
J. H. Powell	3,338.25
Class 11.—Bar iron:	
H. L. Van Winkle	305.00
The Benj. Atha & Illingworth Co	305.00
Chas. P. Fonda	305.00
M. M. Buck Manufacturing Co	524.80
Edward D. Flint	312.30
Wakefield Baker	313.00
E. A. Howard & Co.*	290.40
Dunham, Carrigan & Hayden Co	305.00
Miller, Sloss & Scott	305.00
Class 12.—Tool steel:	
H. L. Van Winkle	1,776.10
Anderson, DuPuy & Co	1,297.10

* Accepted.

Schedule of proposals for supplies for the Mare Island Navy-Yard under Bureau advertisement dated September 14, 1896; opened October 13, 1896—Continued.

Class 12.—Tool steel—Continued.	
The Benj. Atha & Illingworth Co.*	$1,046.40
Chas. P. Fonda	1,405.80
M. M. Buck Manufacturing Co	2,203.00
Edward D. Flint	1,408.00
Dunham, Carrigan & Hayden Co.	2,586.81
Midvale Steel Co	1,853.00
Miller, Sloss & Scott	3,090.00
Class 13.—Babbitt metal:	
Chas. P. Fonda	250.00
M. M. Buck Manufacturing Co	215.00
Wakefield Baker	180.00
Miller Sloss & Scott *	174.80
Class 14.—Packing:	
Manhattan Supply Co	528.00
The Bowers Rubber Co.*	480.00
Frank W. McNeal	1,360.00
Francis Harral	497.50
M. M. Buck Manufacturing Co	540.00
Boston Woven Hose and Rubber Co	800.00
Class 15.—Alcohol:	
Wm. P. Fuller & Co.*	2,430.00
Reddington & Co	2,450.00
Class 16.—Concentrated lye:	
Manhattan Supply Co	450.00
C. C. Bruce	337.00
Fiske Bros. Refining Co	319.00
Wm. P. Fuller & Co	400.00
Chas. M. Yates*	293.75
F. M. McWilliams	600.00
Class 17.—White lead:	
Wm. S. Miller	1,534.00
Kellogg & McDougall	1,555.00
The Welch White Lead Co	1,700.00
Fiske Bros. Refining Co	1,563.00
Wm. P. Fuller & Co.*	1,467.00
Peninsular Lead and Color Works	1,837.50
Chas. M. Yates	1,631.25
F. N. Woods	1,469.70
Class 18.—Gum shell lac:	
Fiske Bros. Refining Co	1,562.00
William P. Fuller & Co*	1,400.00
Chas. M. Childs & Co	1,700.00
Chas. M. Yates	1,437.50
F. M. McWilliams	1,732.50
Class 19.—White zinc:	
John Lucas & Co	1,565.00
Wm. P. Fuller & Co	1,527.50
Peninsular Lead and Color Works	2,300.00
Chas. M. Childs & Co	1,750.00
Chas. M. Yates*	1,445.00
Class 20.—Lard oil:	
Fiske Bros. Refining Co	5,756.16
Wm. P. Fuller & Co*	5,400.00
Class 21.—Turpentine:	
Wm. S. Miller	1,275.00
Wm. P. Fuller & Co*	1,197.00
Chas. M. Childs & Co	1,650.00
Chas. M. Yates	1,272.00
Class 22.—Sperm oil:	
Fiske Bros. Refining Co	6,099.60
Wm. P. Fuller & Co*	5,868.00
H. J. Knowles	(†)
Charles M. Yates	6,420.00
F. N. Woods	6,300.00
Class 23.—Linseed oil:	
Wm. S. Miller	2,580.00
Fiske Bros. Refining Co	2,620.50
Wm. P. Fuller & Co*	2,574.00
Chas. M. Childs & Co	3,240.00
Chas. M. Yates	2,655.00
F. N. Woods	2,820.00
Class 24.—Japan dryer:	
John Lucas & Co	1,630.00
Anglo-American Varnish Co	1,162.00
Wm. P. Fuller & Co*	1,125.00
Class 24.—Japan dryer—Continued	
Murphy Varnish Co	$1,755.00
Chas. M. Childs & Co	1,407.00
Chas. M. Yates	1,167.00
F. M. McWilliams	1,330.00
Class 25.—Paints:	
John Lucas & Co	854.77
Wm. P. Fuller & Co*	734.64
Peninsular Lead and Color Works	897.28
Chas. M. Childs & Co	887.45
Chas. M. Yates	748.20
Class 26.—Shovels:	
Geo. T. Hawley	90.00
Wakefield Baker*	70.80
Miller, Sloss & Scott	107.40
Class 27.—Files:	
Manhattan Supply Co	1,222.34
H. L. Van Winkle	1,166.97
Frank W. McNeal	1,110.74
Geo. T. Hawley	1,302.05
M. M. Buck Manufacturing Co	1,375.38
Edward D. Flint	2,104.70
Wakefield Baker	1,249.33
Dunham, Carrigan & Hayden Co.	1,075.44
Miller, Sloss & Scott*	1,049.93
Class 28.—Beeswax:	
Louis E. Lake	156.00
C. C. Bruce	150.00
M. M. Buck Manufacturing Co	200.00
Fiske Bros. Refining Co	170.00
Wm. P. Fuller & Co.*	185.00
Wakefield Baker	195.00
Chas. M. Yates	155.00
Reddington & Co	140.00
Francis J. Dessoir	159.85
S. C. Forsaith Machine Co	151.00
F. M. McWilliams	170.00
Class 29.—Laundry soap:	
Manhattan Supply Co	88.00
Louis E. Lake	70.00
Louis Feldman *	67.00
C. C. Bruce	80.00
Francis J. Dessoir	78.80
F. M. McWilliams	140.00
Class 30.—Cotton waste:	
Louis E. Lake	1,950.00
M. M. Buck Manufacturing Co	1,650.00
Fiske Bros. Refining Co	1,650.00
Wm. P. Fuller & Co.*	1,380.00
Wakefield Baker	1,396.00
Chas. M. Yates	1,575.00
Miller, Sloss & Scott	1,896.00
F. M. McWilliams	1,594.00
Class 31.—Ash:	
A. S. Carman	2,088.00
Wm. H. Leahy*	1,920.00
E. A. Howard & Co	2,040.00
J. H. Powell	2,244.00
Wm. Walker	1,968.00
Class 32.—Cherry:	
A. S. Carman	910.00
Wm. H. Leahy*	825.00
J. H. Powell	1,000.00
Class 33.—White ash:	
A. S. Carman	174.00
Wm. H. Leahy	180.00
E. A. Howard & Co.*	150.00
J. H. Powell	208.00
Class 34.—Oregon pine:	
A. S. Carman*	2,570.00
Wm. H. Leahy	(†)
J. H. Powell	3,165.30
Wm. Walker	3,208.35
Class 35.—Redwood shingles:	
A. S. Carman	125.80
J. H. Powell*	122.10
Wm. Walker	129.50

* Accepted.

† Informal.

Schedule of proposals for supplies for the New York Navy-Yard under Bureau advertisement dated October 6, 1896; opened October 27 1896.

Class 1.—Paper, etc.:	
D. A. Tower	$721.55
Arthur Mountain & Co.*	659.25
Frank W. McNeal	737.60
Manhattan Supply Co	718.90
Class 2.—Pens:	
D. A. Tower*	154.56
Arthur Mountain & Co	167.04
John Wanamaker	157.44
Elliott B. Thurber	176.64
Manhattan Supply Co	163.20
Class 3.—Rubber erasers, etc.:	
D. A. Tower*	497.82
Arthur Mountain & Co	525.84
John Wanamaker	684.16
Manhattan Supply Co	507.76
Class 4.—Inks and mucilage:	
D. A. Tower*	414.80
John Wanamaker	436.00
Elliott B. Thurber	428.64
Manhattan Supply Co	419.48
Class 5.—Rubber bands:	
D. A. Tower*	149.72
Arthur Mountain & Co	166.89
Fiske Bros. Refining Co	180.81
John Wanamaker	189.48
Frank W. McNeal	198.12
Manhattan Supply Co	185.94
Class 6.—Miscellaneous stationery:	
D. A. Tower*	752.41
Arthur Mountain & Co	814.23
Manhattan Supply Co	786.00
Class 7.—Buckets:	
Patterson, Gottfried & Hunter†	300.00
Geo. L. Neville*	359.50
Elliott B. Thurber	372.50
Frank W. McNeal	385.00
Manhattan Supply Co	369.00
Brooklyn Hardware and Sporting Goods Co	367.00
Class 8.—Hand lamps:	
Patterson, Gottfried & Hunter†	18.00
Porter's Son & Co	90.00
Jas. Reilly Repair and Supply Co	84.80
E. Hazard Aikman	96.00
Elliott B. Thurber	82.00
Wm. Porter's Son*	79.20
Brooklyn Hardware and Sporting Goods Co	98.40
Class 9.—Asbestos millboard:	
Patterson, Gottfried & Hunter	(†)
Fiske Bros. Refining Co.*	88.08
Jas. Reilly Repair and Supply Co	92.43
Frank W. McNeal	107.24
Manhattan Supply Co	688.40
Boston Woven Hose and Rubber Co	110.85
Class 10.—Electrical supplies:	
Western Electric Co.*	3,151.35
Class 11.—Electrical supplies:	
Porter's Son & Co	2,808.00
Page Bros. & Co.*	2,396.25
Western Electric Co	3,059.50
Joseph Barre	2,579.25
Wm. Porter's Son	2,621.75
Class 12.—10,000 gallons beans:	
C. J. Caughey	2,300.00
Francis J. Dessoir	2,300.00
Frank W. McNeal	2,599.00
Class 12.—10,000 gallons beans—Cont d.	
Austin P. Brown	$2,800.00
Francis B. McManus*	2,181.35
John J. O'Rorke	2,319.00
Class 13.—50,000 pounds corned beef:	
C. J. Caughey*	3,855.00
Sidney Thursby	4,395.00
Sam'l Heymann	4,015.00
Austin P. Brown	4,500.00
Class 14.—50,000 pounds salt beef:	
Thos. C. Dougherty	2,985.00
C. J. Caughey	2,675.00
Eastman Co.*	2,437.50
Joseph C. Cooper	2,600.00
Jas. Reily Repair and Supply Co	2,495.00
Sam'l Heyman	3,250.00
Austin P. Brown	3,125.00
Class 15.—25,000 pounds hams:	
C. J. Caughey	3,875.00
Chas. F. Sullivan	3,500.00
Sidney Thursby	3,217.50
Samuel Heymann*	3,055.00
Austin P. Brown	3,750.00
Class 16.—5,000 pounds dried apples:	
C. J. Caughey	343.50
Francis J. Dessoir	373.00
Austin P. Brown	375.00
John J. O'Rorke*	278.50
Class 17.—40,000 pounds vegetables: ‡	
C. J. Caughey	2,584.00
Francis J. Dessoir	2,412.00
Sidney Thursby*	1,688.00
Austin P. Brown	2,400.00
Class 18.—20,000 pairs woolen socks:	
Thompson Bros	4,200.00
Wm. Westlake	4,580.00
Thos. G. Hood	4,146.00
B. Y. Pippey & Co.*	4,094.00
Class 19.—2,000 mattresses:	
Harry Van Fleet*	5,082.00
W. B. Moses & Sons	(†)
Francis J. Dessoir	6,798.00
John Wanamaker	5,980.00
Thomas M. Farley	5,434.00
Harry P. Dougherty	5,670.00
John Thompson	5,900.00
Class 20.—500 mess pans:	
Francis Harral	159.50
John A. Hardenbergh*	152.50
Elliott B. Thurber	199.85
Manhattan Supply Co	990.00
Class 21.—20,000 pounds mutton:	
C. J. Caughey	1,550.00
Eastman Co.*	1,450.00
Joseph C. Cooper	1,520.00
Austin P. Brown	1,900.00
Class 22.—5,000 pounds prunes:	
C. J. Caughey	462.50
John J. O'Rorke* *a*	414.50
Francis J. Dessoir	468.00
Class 23.—5,000 pounds raisins:	
C. J. Caughey	325.00
Francis J. Dessoir	344.50
John J. O'Rorke* ‖	298.50
Class 24.—100,000 pounds sugar: ‡	
C. J. Caughey	4,234.00
John J. O'Rorke	4,234.00
Francis J. Dessoir* *b* ¶	4,234.00

Schedule of proposals for supplies for the Norfolk Navy-Yard, under Bureau advertisement dated October 15, 1896; opened November 4, 1896.

Class 1.—Nuts, etc.:	
Elliott B. Thurber*	$165.44
Smith-Courtney Co	203.96
Manhattan Supply Co	233.80
Geo. L. Neville	221.93
Porter McNeal Co	203.15
J. H. Sternbergh	208.54
E. L. Mayer	248.00
Class 2.—Hardware:	
Manhattan Supply Co	556.74
Geo. L. Neville	376.21
Jas. Reilly Repair and Supply Co.*	357.95
E. L. Mayer	562.98
Francis Harral	384.36
Class 3.—Cotton canvas:	
Elliott B. Thurber	$432.07
John A. Hardenbergh	429.12
Richard Cromwell*	393.97
Manhattan Supply Co	449.85
Thos. Kelly	422.98
Geo. L. Neville	502.00
Rufus P. Clark	515.00
E. L. Mayer	600.00
Class 4.—Cotton twill:	
Elliott B. Thurber	94.00
John A. Hardenbergh	102.60
Shoemaker & Busch	100.50
Richard Cromwell†	65.60

* Accepted. † Informal. ‡ 20,000 pounds awarded.

a Awarded for $248.70. Awarded for $179.10. *b* Awarded for $3,175.50. ¶ Tie bid.

Schedule of proposals for supplies for the Norfolk Navy-Yard, under Bureau advertisement dated October 15, 1896; opened November 4, 1896—Continued.

Class 4—Cotton twill—Continued.	
Manhattan Supply Co	$99.00
Thos. Kelly	100.00
George L. Neville	120.00
Jas. Reilly Repair and Supply Co.	(†)
Porter McNeal Co	92.00
W. L. Bilisoly	124.00
E. L. Mayer	165.00
Class 5.—Rubber mats:	
Wm. Bowles	93.00
Smith Courtney Co	66.58
Manhattan Supply Co	62.80
Geo. L. Neville	72.00
New Jersey Car Spring and Rubber Co	52.18
Porter McNeal Co	72.00
Merchant & Co.*	49.40
W. L. Bilisoly	69.60
E. L. Mayer	66.00
Francis Harral	51.30
Class 6.—Metals:	
Manhattan Brass Co	1,284.79
Manhattan Supply Co	1,200.24
Geo. L. Neville	1,284.79
A. P. Swoyer & Co	1,284.79
Merchant & Co	1,284.79
Ansonia Brass and Copper Co	1,284.79
E. L. Mayer*	982.35
Class 7.—Tobin bronze:	
Geo. L. Neville	503.80
Ansonia Brass and Copper Co.*	428.23
E. L. Mayer	465.96
Class 8.—Solder:	
Elliott B. Thurber	101.50
N. B. Handy & Co	92.50
Manhattan Supply Co	109.00
Geo. L. Neville	105.00
Jas. Reilly Repair and Supply Co.*	88.40
E. L. Mayer	105.00
Class 9.—Bar iron:	
N. B. Handy & Co	34.58
Frank H. Woodruff	48.45
Smith Courtney Co	36.40
Geo. L. Neville	35.30
Lebanon Iron Co.*	31.60
Porter McNeal Co	33.10
J. H. Sternbergh	32.70
E. L. Mayer	38.50
Class 10.—Galvanized iron:	
N. B. Handy*	209.13
Frank H. Woodruff	248.83
Geo. L. Neville	214.16
Porter McNeal Co	219.06
E. L. Mayer	275.11
Class 11.—Sheet gum:	
Smith Courtney Co	145.00
Geo. L. Neville	320.00
Jas. Reilly Repair and Supply Co.	170.00
New Jersey Car Spring and Rubber Co	156.00
Porter McNeal Co	160.00
W. L. Bilisoly	240.00
E. L. Mayer	300.00
Francis Harral*	116.00
Class 12.—Brass pipe:	
The American Tube Works	828.65
Brooklyn Hardware and Sporting Goods Co	828.65
Manhattan Supply Co.*‡	828.65
Geo. L. Neville	828.65
Jas. Reilly Repair and Supply Co.	828.65
Wm. Westlake	828.65
Edward F. Keating	853.83
A. P. Swoyer & Co	828.65
Morse Burtis	828.65
Ansonia Brass and Copper Co	828.65
E. L. Mayer	883.58
Class 13.—Pipe fittings:	
Smith Courtney Co	738.46
Brooklyn Hardware and Sporting Goods Co	766.46
Manhattan Supply Co	782.20
Geo. L. Neville	752.88
Jas. Reilly Repair and Supply Co.	719.62
Wm. Westlake	907.88
Class 13—Pipe fittings—Continued.	
Edward F. Keating	$900.94
Morse Burtis	925.67
Porter McNeal Co.*	714.60
Theo. L. Bird	760.06
E. L. Mayer	956.46
Class 14.—Iron pipe and fittings:	
Smith Courtney Co	406.15
Brooklyn Hardware and Sporting Goods Co	416.70
Fiske Bros. Refining Co	605.80
Manhattan Supply Co	482.49
Geo. L. Neville	406.92
Jas. Reilly Repair and Supply Co.	363.49
Wm. Westlake	574.58
S. S. Forsaith Machine Co	441.01
Edward F. Keating*	326.26
Morse Burtis	694.92
Porter McNeal Co	395.35
E. L. Mayer	385.22
Class 15.—Water-gauge tubes:	
Smith Courtney Co	20.90
Brooklyn Hardware and Sporting Goods Co	12.43
Manhattan Supply Co	21.80
Geo. L. Neville	19.80
Jas. Reilly Repair and Supply Co.	14.19
Wm. Westlake	35.64
Edward F. Keating*	11.29
Morse Burtis	16.70
Porter McNeal Co	14.92
E. L. Mayer	18.10
Francis Harral	14.80
Class 16.—Tools:	
Carnegie Steel Co.*	340.52
Manhattan Supply Co	835.60
Geo. L. Neville	503.00
Jas. Reilly Repair and Supply Co.	496.38
Porter McNeal Co	516.08
Francis Harral	469.48
Class 17.—Emery paper:	
Manhattan Brass Co	96.30
Shoemaker & Busch	85.00
Fiske Bros. Refining Co	108.25
Geo. L. Neville	94.00
Jas. Reilly Repair and Supply Co.*	81.45
E. L. Mayer	(†)
Francis Harral	90.00
Class 18.—Graining color:	
Shoemaker & Busch	10.50
Chas. M. Childs & Co	20.00
Geo. L. Neville*	9.00
Class 19.—Hardware:	
Geo. L. Neville	718.03
Jas. Reilly Repair and Supply Co.*	610.26
E. L. Mayer	717.25
Francis Harral	679.85
Class 20.—Wire tiller rope:	
Elliott B. Thurber	51.00
Smith Courtney Co	62.40
Manhattan Supply Co	69.00
Geo. L. Neville	65.00
Jas. Reilly Repair and Supply Co.*	42.30
S. C. Forsaith Machine Co	54.53
Porter McNeal Co	60.00
E. L. Mayer	50.00
Francis Harral	47.50
Class 21.—White ash:	
Geo. L. Neville	1,080.72
C. H. Bull*	593.00
Chas. S. Conner	2,043.45
Watson & Pittinger	653.90
J. Davis Read	1,587.50
Duke & Smith	645.77
Class 22.—Yellow pine:	
Geo. L. Neville	592.54
C. H. Bull*	408.00
Chas. S. Conner	745.08
Duke & Smith	556.02
Class 23.—White pine:	
Geo. L. Neville	756.75
Chas. S. Conner	899.62
Watson & Pittinger*	658.25
Duke & Smith	729.50

*Accepted. † Informal. ‡ Tie bid.

Schedule of proposals for supplies for the Norfolk Navy-Yard, under Bureau advertisement dated October 15, 1896; opened November 4, 1896—Continued.

Class 24.—White ash:	
Geo. L. Neville	$320.00
Chas. S. Conner	340.00
Watson & Pittinger	392.00
J. Davis Read*	218.00
Duke & Smith	300.00
Class 25.—Cypress and cedars:	
Geo. L. Neville*	1,760.00
Chas. S. Conner	2,850.00
Duke & Smith	2,460.00
Class 26.—Copper bolts:	
Manhattan Supply Co	573.39
Geo. L. Neville	613.70
Jas. Reilly Repair and Supply Co	623.10
A. P. Swoyer & Co	616.20
Merchant & Co.*	564.82
Ansonia Brass and Copper Co	616.20
E. L. Mayer	616.20
Class 27.—Wrought-iron pipe:	
Smith Courtney Co	120.75
Brooklyn Hardware and Sporting Goods Co	96.60
Fiske Bros. Refining Co	128.52
Mahattan Supply Co	106.89
Geo. L. Neville	111.19
Jas. Reilly Repair and Supply Co.*	96.08
Class 27—Wrought-iron pipe—Cont'd.	
Wm. Westlake	$96.81
S. C. Forsaith Machine Co	100.28
Edward F. Keating	98.80
Morse Burtis	105.00
Porter McNeal Co	116.25
E. L. Mayer	109.25
Class 28.—Hackmatack knees:	
Geo. L. Neville*	42.00
Chas. S. Conner	90.00
Watson and Pittinger	57.00
J. Davis Read	59.40
Class 29.—Steel rivets:	
Geo. L. Neville*	171.10
J. H. Sternbergh	174.00
Class 30.—Steel plates:	
Austin P. Brown	3,360.17
Frank H. Woodruff	3,754.38
Carnegie Steel Co.*	2,815.78
Geo. L. Neville	3,191.22
Class 31.—Steel, angle:	
Austin P. Brown	1,738.91
N. B. Handy & Co.*	1,261.99
Carnegie Steel Co	1,381.53
Geo. L. Neville	1,813.91

Schedule of proposals for supplies for the New York Navy-Yard under Bureau advertisement dated October 16, 1896; opened November 4, 1896.

Class 1.—Bolts and nuts:	
Brooklyn Hardware and Sporting Goods Co	$81.21
D. H. Lowber	72.01
J. H. Sternbergh	66.17
Jas. Reilly Repair and Supply Co	76.40
Manhattan Supply Co	74.20
Elliott B. Thurber	76.30
Patterson, Gottfried & Hunter*	65.10
Class 2.—Spun cotton:	
Brooklyn Hardware and Sporting Goods Co	142.50
Manhattan Supply Co	110.25
Elliott B. Thurber*	63.45
Patterson, Gottfried & Hunter	75.00
Class 3.—Tools:	
Brooklyn Hardware and Sporting Goods Co	1,596.86
Jas. Reilly Repair and Supply Co	1,383.67
Manhattan Supply Co	2,043.43
Patterson, Gottfried & Hunter	1,304.52
Francis Harral	1.264.80
Class 4.—Hardware:	
Patterson, Gottfried & Hunter	272.82
Francis Harral	245.40
Class 5.—Screws, etc.:	
Robert Murray	1,199.83
Brooklyn Hardware and Sporting Goods Co	1.222.41
D. H. Lowber	1,340.82
Jas. Reilly Repair and Supply Co	1,307.49
John A. Hardenbergh*	1,136.53
Patterson, Gottfried & Hunter	1.177.21
Francis Harral	1.334.08
Class 6.—Gear-cutters:	
Brooklyn Hardware and Sporting Goods Co	240.46
Philadelphia Machinery and Supply Co	202.00
Patterson, Gottfried & Hunter*	198.38
Class 7.—Die stocks, chasers, etc.:	
Philadelphia Machinery and Supply Co	215.72
Patterson, Gottfried & Hunter*	196.31
Pratt & Whitney Co	272.54
Class 8.—Portable forges:	
D. H. Lowber	107.22
Philadelphia Machinery and Supply Co	100.50
S. C. Forsaith Machine Co	104.40
Patterson, Gottfried & Hunter	144.00
Class 9.—Sheet brass:	
Manhattan Supply Co	1,020.91
Manhattan Brass Co	1,020.91
Class 9.—Sheet brass—Coutinued.	
Ansonia Brass and Copper Co	$1,020.91
Geo. L. Neville*†	1,020.91
A. P. Swoyer & Co	1,020.91
Edward F. Keating	1,070.28
Merchant & Co	1,020.91
Joseph A. McKee	1.144.46
Class 10.—Sheet lead:	
Brooklyn Hardware and Sporting Goods Co	132.02
Wm. Westlake	133.43
Morse Burtis*	106.74
Jas. Reilly Repair and Supply Co	117.97
Manhattan Supply Co	146.06
Elliott B. Thurber	127.53
Colwell Lead Co	117.97
E. J. Brooks Co	119.38
Merchant & Co	112.07
Patterson, Gottfried & Hunter	126.41
Class 11.—Steel balls: ‡	
Jas. Reilly Repair and Supply Co	273.00
Elliott B. Thurber	276.90
Joseph A. McKee	260.00
Patterson, Gottfried & Hunter	218.73
Class 12.—Tobin bronze:	
Ansonia Brass and Copper Co.*	,619.16
Class 13.—Tool steel (octagon):	
Midvale Steel Co.*	465.00
Class 14.—Tool steel:	
Park Bros. & Co	144.00
Benj. Atha & Illingworth Co.*	128.00
Midvale Steel Co	160.00
Carpenter Steel Co	160.00
E. J. Brooks Co	192.10
Joseph A. McKee	210.00
Patterson, Gottfried & Hunter	160.00
Class 15.—Rubber packing:	
Morse Burtis	360.00
Jas. Reilly Repair and Supply Co	462.00
New Jersey Car Spring and Rubber Co	408.00
Manhattan Supply Co	508.80
Wm. Bowles	300.00
Patterson, Gottfried & Hunter	480.00
Francis Harral*	274.80
Class 16.—Gum gaskets:	
Morse Burtis	220.00
Jas. Reilly Repair and Supply Co	211.75
New Jersey Car Spring and Rubber Co	214.50
Manhattan Supply Co	308.00
Wm. Bowles	880.00
Patterson, Gottfried & Hunter	412.50
Francis Harral	261.00

* Accepted. † Tie bid. ‡ Open purchase.

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated October 16, 1896; opened November 4, 1896—Continued.

Class 17.—Marine glue:	
Chas. M. Childs & Co	$1,305.00
Shoemaker & Busch	1,312.50
Elliott B. Thurber*	1,236.00
Class 18.—Turpentine, etc.:	
Fiske Bros. Refining Co	125.00
Shoemaker & Busch	136.75
Elliott B. Thurber	112.25
Geo. L. Neville*	98.00
Class 19.—Brass tubing:	
Wm. Westlake	780.57
American Tube Works	780.55
Morse Burtis	804.70
Jas. Reilly Repair and Supply Co	804.70
Manhattan Supply Co.*	775.31
Ansonia Brass and Copper Co	780.55
Geo. L. Neville	780.55
John A. Hardenbergh	810.80
A. P. Swayer & Co	780.55
Edward F. Keating	819.39
Merchant & Co	780.68
Class 20.—Wrought-iron pipe:	
John Simmons Co	154.10
Wm. Westlake	61.50
Fiske Bros. Refining Co	69.50
Morse Burtis	70.00
Jas. Reilly Repair and Supply Co	59.33
S. C. Forsaith Machine Co	64.30
John A. Hardenbergh	62.75
E. F. Keating*	58.25
Patterson, Gottfried & Hunter	61.23
Class 21.—Files:	
F. P. May & Co	114.28
Brooklyn Hardware and Sporting Goods Co	98.98
Jas. Reilly Repair and Supply Co.*	93.59
Joseph A. McKee	136.92
Patterson, Gottfried & Hunter	109.50
Class 22.—Chain tongs:	
Brooklyn Hardware and Sporting Goods Co	120.02
D. A. Lowber	103.00
John Simmons Co	137.28
Morse Burtis	92.40
Philadelphia Machinery and Supply Co	117.30
Jas. Reilly Repair and Supply Co.	95.12
Manhattan Supply Co	99.60
S. C. Forsaith Machine Co	122.04
John A. Hardenbergh	100.62
E. F. Keating	109.80
Joseph A. McKee	102.70
Pratt Whitney Co	109.80
Francis Harral	100.78
Class 23.—Candles:	
Warner Ells	$296.40
Jas. Reilly Repair and Supply Co.*	281.80
E. B. Thurber	363.00
Class 24.—Steel plates:	
Carnegie Steel Co.*	1,654.50
Park Bros. & Co	2,197.21
Carbon Steel Co	2,150.85
Frank H. Woodruff	2,116.40
George L. Neville	1,930.25
Class 25.—Steel angles:	
Carnegie Steel Co.*	590.00
Frank H. Woodruff	623.82
George L. Neville	669.90
Class 26.—Rivet steel:	
Carnegie Steel Co.*	300.00
Park Bros. & Co	310.00
Benj. Atha & Illingworth Co	500.00
J. H. Sternbergh & Co	350.00
Midvale Steel Co	1,100.00
Frank H. Woodruff	413.00
Class 27.—Bar steel:	
Park Bros. & Co.*	286.28
Benj. Atha & Illingworth Co	481.45
Midvale Steel Co	1,185.47
Class 28.—Leather:	
Brooklyn Hardware and Sporting Goods Co	281.70
Manhattan Supply Co	398.00
William Bowles	351.50
Patterson, Gottfried & Hunter*	276.00
Class 29.—Sheet tin:	
Brooklyn Hardware and Sporting Goods Co	124.95
Jas. Reilly Repair and Supply Co.	68.85
E. B. Thurber	79.80
E. J. Brooks & Co	91.41
Joseph A. McKee	80.25
Class 30.—Brass pipe:	
D. A. Lawler	1,682.68
Wm. Westlake	1,599.89
American Tube Works	1,607.33
Morse Burtis	1,657.05
Jas. Reilly Repair and Supply Co.	1,657.05
Manhattan Supply Co	1,607.33
Ansonia Brass and Copper Co	1,607.33
Geo. L. Neville	1,607.33
John A. Hardenbergh	1,657.05
A. P. Swayer	1,607.33
E. F. Keating*	1,572.68
Merchant & Co	1,607.33
Class 31.—Sponges:	
Shoemaker and Busch*	49.50
Manhattan Supply Co	54.00
E. B. Thurber	78.00
Patterson, Gottfried & Hunter	90.00

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated October 23, 1896; opened November 10, 1896.

Class 1.—Salt-water soap:	
Jas. Reilly Repair and Supply Co.	$6,498.80
Manhattan Supply Co	6,870.00
C. J. Caughey	7,750.00
Marass Jenkins	16,000.00
Specialty Soap Manufacturing Co	5,824.00
Francis J. Dessoir	7,200.00
R. R. Wireman*	6,280.00
Class 2.—Steel bars:	
F. H. Woodruff*	997.92
Bethlehem Iron Co	1,247.40
Midvale Steel Co	1,995.84
Class 3.—Tools:	
Manhattan Supply Co	$140.66
Francis Harral	165.14
Class 4.—Electrical supplies:	
Manhattan Supply Co	157.00
Western Electric Co.*	143.00
Class 5.—Electrical supplies:	
Manhattan Supply Co*	106.58
Western Electric Co	108.79

* Accepted.

Schedule of proposals for supplies for the Washington Navy-Yard, under Bureau advertisement dated October 27, 1896; opened November 10, 1896.

Class 1.—Fire brick:	
J. B. Kendall	$200.10
Jas. Reilly Repair and Supply Co.	231.15
F. W. McNeal	239.00
James H. McGill*	189.06
Thomas Somerville & Sons	196.65
John E. Bates	227.70
J. W. Paxson & Co	258.75
J. T. Walker Sons	207.00
Patterson, Gottfried & Hunter	248.40
Clark Bros. Lime and Cement Co.	200.10
Geo. L. Neville	207.00
Brooklyn Hardware and Sporting Goods Co	272.55
Class 2.—Steel shafts:	
Manhattan Supply Co	175.50
Washington Supply Co	186.90
Wm. Sellers & Co	191.54
Elliott Machine Co.*	144.11
Geo. E. Howard	228.00
S. C. Forsaith Machine Co	189.50
Geo. V. Cresson Co	180.75
Class 3.—Pillow blocks:	
Manhattan Supply Co	357.70
Washington Supply Co.*	121.75
Wm. Sellers & Co	198.10
Elliott Machine Co	168.40
Geo. C. Howard	199.50
Geo. V. Cresson	146.75
Class 4.—Pulleys:	
Manhattan Supply Co	305.57
Washington Supply Co	220.50
Class 4—Continued.	
Wm. Sellers & Co	$224.23
Elliott Machine Co.*	200.50
Geo. C Howard	304.00
Geo. V. Cresson	216.50
Class 5.—Set screws:	
Manhattan Supply Co	41.50
J. B. Kendall	40.30
Jas. Reilly Repair and Supply Co.	36.13
F. P. May & Co	37.90
J. H. Sternbergh*	31.95
Patterson, Gottfried & Hunter	33.03
Geo. L. Neville	56.00
Brooklyn Hardware and Sporting Goods Co	48.10
Class 6.—Tools:	
Manhattan Supply Co	256.95
Francis Harral*	195.09
Jas. Reilly Repair and Supply Co.	216.70
Class 7.—Files:	
J. B. Kendall*†	183.69
Jas. Reilly Repair and Supply Co	183.69
F. W. McNeal	198.80
Patterson, Gottfried & Hunter	200.71
Brooklyn Hardware and Sporting Goods Co	193.08
Class 8.—Belting and packing: ‡	
National Leather Belting Co	457.20
Jas. Reilly Repair and Supply Co.	477.62
Leo Loeb	376.40
Geo. L. Neville	610.80

Schedule of proposals for supplies for the Norfolk Navy-Yard under Bureau advertisement dated October 21, 1897; opened November 10, 1897.

Class 1.—Steel rivets:	
J. H. Sternbergh*	$952.00
N. B. Handy & Co	969.00
Austin P. Brown	1,360.00
Geo. L. Neville	999.94
Class 2.—Steel plates: ‡	
Carnegie Steel Co	2,190.48
F. H. Woodruff	2,987.01
Park Bros. & Co	3,555.98
Austin P. Brown	3,631.42
Geo. L. Neville	2,844.78
Class 3.—Angle bars:	
N. B. Handy*	381.48
Class 3—Continued.	
Carnegie Steel Co	$437.28
F. H. Woodruff	512.52
A. P. Brown	472.20
Geo. L. Neville	512.52
Class 4.—Rivet rods:	
J. H. Sternbergh	255.00
N. B. Handy & Co.*	210.00
Carnegie Steel Co	225.00
F. H. Woodruff	285.00
Park Bros. & Co	247.50
A. P. Brown	352.50
Geo. L. Neville	267.75

Schedule of proposals for supplies for the Mare Island Navy-Yard, under Bureau advertisement dated October 17, 1896; opened November 17, 1896.

Class 1.—Rivets:	
Dunham, Carrigan & Hayden	$17.97
Holbrook, Merrill & Stetson*	13.58
Baker & Hamilton	19.20
Manhattan Supply Co	44.85
Geo. T. Hawley	20.40
Miller, Sloss & Scott	29.39
Class 2.—Scrub brushes:	
Holbrook, Merrill & Stetson	60.00
Louis E. Lake	122.50
W. P. Fuller & Co	65.00
Francis Harral*	53.00
Miller, Sloss & Scott	262.00
Class 3.—File cards, etc.:	
Louis E. Lake	106.80
Baker & Hamilton*	52.80
Francis Harral	55.28
Miller, Sloss & Scott	55.50
Class 4.—Rubber mats:	
Louis E. Lake	324.00
Bowers Rubber Co.*	174.60
Manhattan Supply Co	285.60
Miller, Sloss & Scott	259.40
Class 5.—Hardware:	
Dunham, Carrigan & Hayden Co.	129.53
Baker & Hamilton*	128.95
Geo. T. Hawley	138.49
Miller, Sloss & Scott	158.80
Class 6.—Lanterns:	
Wm. Porter's Sons	$980.40
Porter's Son & Co	720.00
E. Howard Aikman	762.00
Martin Bauer*	510.00
Class 7.—Leather:	
Louis E. Lake	412.50
Chas. D. Nichols*	283.12
Alfred J. Marcus	297.19
Miller, Sloss & Scott	409.25
Class 8.—Asbestus millboard:	
Dunham, Carrigan & Hayden Co.*	170.77
Chas. F. Tay	189.75
Fiske Bros. Refining Co	176.47
Miller, Sloss & Scott	674.70
Class 9.—Gum packing:	
Bowers Rubber Co.*	1,200.00
Francis Harral	1,556.00
Boston Woven Hose and Rubber Co	1,880.00
Class 10.—Sulphuric acid:	
W. P. Fuller & Co.*	116.25
Reddington & Co	169.50
Chas. M. Yates	207.00
Chas. M. Childs & Co	422.00
Class 11.—Paints:	
Alston Manufacturing Co	449.38
W. P. Fuller & Co.*	313.00

* Accepted. † Tie bid. ‡ No award.

Schedule of proposals for supplies for the Mare Island Navy-Yard, under Bureau advertisement dated October 17, 1896; opened November 17, 1896—Continued.

Class 11 —Paints—Continued.	
C. A. Woolsey Paint and Color Co.	$485.00
Chas. M. Yates	375.00
John Lucas & Co	580.63
Chas. M. Childs & Co	553.75
Class 12.—Pitch:	
W. P. Fuller & Co.*	132.50
Manhattan Supply Co	240.00
Geo. L. Neville	400.00
Chas. M. Childs & Co	300.00
Miller, Sloss & Scott	192.00
Class 13.—Pipe and fittings:	
Dunham, Carrigan & Hayden Co.	1,225.92
S. C. Forsaith Machine Co	1,526.96
Holbrook, Merrill & Stetson	1,234.35
Chas. F. Tay*	1,158.65
Baker & Hamilton	1,321.52
Manhattan Supply Co	1,271.90
Miller, Sloss & Scott	1,262.50
Class 14.—Emery:	
Baker & Hamilton	170.50
Geo. T. Hawley*	165.75
Miller, Sloss & Scott	176.00
Class 15.—Tools:	
Dunham, Carrigan & Hayden Co.	64.55
Baker & Hamilton	59.30
Geo. T. Hawley	49.54
Miller, Sloss & Scott	60.71
Class 16.—Soap:	
Reddington & Co.*	$22.25
F. J. Dessair	23.50
Miller, Sloss & Scott	46.00
Class 17.—Rivets:	
Dunham, Carrigan & Hayden Co.	58.19
Holbrook, Merrill & Stetson*	44.35
Geo. F. Tay	59.57
Baker & Hamilton	65.15
Manhattan Supply Co	89.80
Geo. T. Hawley	62.65
Miller, Sloss & Scott	88.42
Class 18.—Bolts and nuts:	
Dunham, Carrigan & Hayden Co.*	123.00
Baker & Hamilton	180.00
Geo. T. Hawley	192.00
Miller, Sloss & Scott	284.40
Class 19.—Angle steel:	
Dunham, Carrigan & Hayden Co.*	64.20
Miller, Sloss & Scott	85.20
Class 20.—Sheet iron:	
Dunham, Carrigan & Hayden Co.*	330.00
Holbrook, Merrill & Stetson	341.55
Chas. F. Tay	350.46
Manhattan Supply Co	385.11
Miller, Sloss & Scott	355.41

Schedule of proposals for supplies for the Key West, Fla., Navy-Yard, under Bureau advertisement dated November 9, 1896, and opened November 24, 1896.

Class 1.—Coal:	
E. B. Townsend*	$13,925.00
Peale, Peacock & Kerr	13,975.00
F. J. Dessoir	15,750.00
David Duncan & Son	14,725.00
Class 1.—Coal—Continued.	
Joseph K. Wells	$14,300.00
Sam'l G. French	14,375.00
T. Bennett Phillips	16,225.00

Schedule of proposals for supplies for the Mare Island Navy-Yard, under Bureau advertisement dated October 20, 1896, and opened November 24, 1896.

Class 1.—Forgings:	
Bethlehem Iron Co.*	$5,850.00
Class 2.—Castings:	
Pennsylvania Steel Casting and Machine Co	2,750.00
Class 2.—Castings—Continued.	
American Steel Casting Co.*	$2,556.25
Midvale Steel Co	(†)

Schedule of proposals for supplies for the Mare Island Navy-Yard, under Bureau advertisement dated October 31, 1896; opened December 1, 1896.

Bidder 1. Austin P. Brown, Washington.
2. Dunham, Carrigan & Hayden Co., 17 Beale street, San Francisco.
3. Miller, Sloss & Scott, 18 Fremont street, San Francisco.
4. Benjamin Atha & Illingworth Co., Newark, N. J.
5. Carnegie Steel Co., Limited, Pittsburg, Pa.
6. Park Bro. & Co., Limited, box 755, Pittsburg, Pa.
7. The Lukens Iron and Steel Co., Coatesville, Chester County, Pa.

Class 1.—Steel bars, etc:
Bidder 3, *$1,835.96.
Class 2.—Steel plates:
Bidder 5, *$2,251.97; 7, $2,251.97; 4, $2,467.38; 2, $3,299.63.
Class 3.—Rivet rod:
Bidder 6, *$365.50; 5, $391; 3, $474.30; 2, $481.40; 4, $544.
Class 4.—100 pieces iron bead:
Bidder 3, *$257.04; 2, $296,07.

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated November 21, 1896; opened December 8, 1896.

Bidder 1. Johnson Bros., 3 Broome street, New York City.
2. N. E. Allen & Co, 34 Wall street, New York City.
3. American Lumber Co., First avenue and Twenty-eighth street, New York City.
4. General Electric Co., 44 Broad street, New York City.
5. Wm. E. Uptegrove & Bro., 457 East Tenth street, New York City.
6. Geo. W. Piper, 55 South street, New York City.
7. Geo. N. Gardiner, 53 South street, New York City.
Bidder 8. Thos. G. Hood, 1100 Market street, Philadelphia.
9. B. Y. Pippey & Co., 45 Leonard street, New York City.
10. Thos. Kelly, 958 Third avenue, New York.
11. A. P. Swoyer & Co., 17 South Seventh street, Philadelphia.
12. Rahtjens American Composition Co., 26 Beaver street, New York City.
13. Patterson, Gottfried & Hunter, 146 Center street, New York City.
14. Chas. O'Regan, 245 Forty-fourth street Brooklyn, N. Y.

*Accepted.

† Informal.

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated November 21, 1896; opened December 8, 1896—Continued.

Bidder 15. American Tube Works, 137 Milk street, Boston, Mass.
16. Chas. A. Moore, 111 Liberty street, New York City.
17. Wm. Westlake, 43 Leonard street, New York City.
18. Francis J. Dessior, 56 Hudson street, New York City.
19. Wm. R. Adams, Van Brunt and Bowne streets, Brooklyn, N. Y.
20. John A. Hardenbergh, 109 Duane street, New York City.
21. Frank W. McNeal, 80 Reade street, New York City.
22. Watson & Pittenger, 42 Carroll street, Brooklyn, N. Y.
23. Merchant & Co., Incorporated, 517 Arch street, Philadelphia.
24. Manhattan Supply Co., 141 Chambers street, New York City.
25. Chas. E. Pell, 24 Tompkins street, New York City.
26. Geo. L. Neville, Portsmouth, Va.
27. Bishop Gutta Percha Co., 420 East Twenty-fifth street, New York City.
28. Western Electric Co., New York City.
29. Safety Insulated Wire Cable Co., 229 West Twenty-eighth street, New York City.
30. Duke & Smith, Box 394, Norfolk, Va.
31. India Rubber Comb Co., 9 Mercer street, New York City.

Class 1.—McGinness's antifouling and anticorrosive composition:
Bidder 6, $3,800; 7, *$5,200.

Class 2.—Rahtjen's antifouling and anticorrosive composition:
Bidder 12, *$7,200.

Class 3.—5,000 blankets:
Bidder 17, *$8,800; 9, $8,925; 20, $8,950; 18, $9,475; 21, $9,999.50.

†Class 4.—5,000 dozen ivory buttons, small:
Bidder 8, $154.50; 10, $155; 24, $159.50; 18, $162.50.

Class 5.—Rubber buttons, large and small:
Bidder 8, *$477.50; 10, $484.20; 31, $483; 18, $489; 24, $492.

Class 6.—20,000 yards bleached cotton, drill:
Bidder 17, *$2,034; 8, $2,074; 20, $2,200; 18, $2,448.

Class 7.—Condenser tubes:
Bidder 11, *$8,005.15; 15, $8,005.15; 16, $8,005.15; 23, $8,005.15; 24, $8,005.15; 26, $8,005.15.

Class 8.—10,000 yards cotton braid, for condenser packing:
Bidder 21, *$23; 24, $70; 13, $90.

Class 9.—United States marine conductors:
Bidder 27, *$2,154.45; 24, $2,250.80; 29, $2,382.70; 28, $2,395.30; 4, $2,641.70.

Class 10.—500 feet steel wire rope:
Bidder 13, *$2.25; 21, $3; 24, $12; 16, $35.

Class 11.—German silver wire:
Bidder 13, *$34.05; 23, $34.15; 28, $40.28; 24, $41.30; 16, $65.10.

Class 12.—White pine:
Bidder 22, *$2,740; 2, $2,800; 25, $2,800; 19, $2,835; 3, $2,893; 30, $2,935; 5, $2,950; 14, $2,950; 1, $3,047.50.

Class 13.—Yellow pine:
Bidder 1, *$1,372.25; 22, $1,402.50; 26, $1,485; 25, $1,595; 5, $1,650; 30, $2,195.

Class 14.—White-pine box boards:
Bidder 5, *$760; 19, $795; 25, $799.20; 1, $948; 3, $997; 2, $1,020; 22, $1,020; 14, $1,160; 30, $1,195.

Schedule of proposals for supplies for the Boston Navy-Yard, under Bureau advertisement dated November 27, 1896; opened December 15, 1896.

Class 1.—Galvanized steel wire:

F. W. McNeal*	$1,467.00
Manhattan Supply Co	1,502.50
Washburn & Moen Manufacturing Co	1,915.00
Trenton Iron Co	$1,602.50
Geo. L. Neville	1,518.84

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated November 28, 1896; opened December 15, 1896.

Bidder 1. Smith, Klein & French Co.
2. Chas. E. Pell.
3. Wells & Wells.
4. Thomas Kelly.
5. Francis Harral.
6. American Distributing Co.
7. W. R. Adams.
8. Stovene Manufacturing Co.
9. Swan & Finch Co.
10. A. F. Belden & Co.‡
11. Watson & Pittenger.
12. S. C. Forsaith Machine Co.
13. John A. Hardenbergh.
14. Fiske Bros. Refining Co.
15. Chas. A. Moore.
16. Manhattan Oil Co.
17. Frank W. McNeal.
18. H. A. Rogers.
19. Manhattan Supply Co.
20. Wm. E. Uptegrove & Bro.
21. Wm. Westlake.
22. Elliott B. Thurber.
23. E. J. Brooks & Co.
24. John S. Mason & Co.
25. J. B. Morrell & Co.
26. National Distributing Co.
27. James Reilly Repair and Supply Co.
28. Francis J. Dessoir.
29. John Early.
30. R. P. Rowe.
31. E. J. Barrett Co.
32. Brooklyn Hardware and Sporting Goods Co.
33. Geo. L. Neville.
34. Wm. Taylor.
35. Duke & Smith.

Class 1.—Scrubbing brushes:
Bidder 5, $83; 13, *$75; 19, $89.30; 22, $83; 29, $78.

Class 2.—White ash:
Bidder 2, *$860; 7, $1,080; 11, $920; 20, $807.80; 24, $900.

Class 3.—White pine:
Bidder 2, *$11,173.50; 11, $11,403; 20, $11,659.30; 31, $16,110.50; 35, $13,279.

Class 4.—Yellow pine:
Bidder 2, $4,160; 11, $3,152; 20, $3,663.50; 23,* $2,620; 31, $4,200; 33, $3,685; 35, $4,695.

Class 5.—White oak:
Bidder 2, *$937.25; 11, $975; 20, $1,022.50; 24, $1,200; 31, $1,043.75; 33, $1,750; 34, $1,050; 35, $1,200.

Class 6.—White spruce:
Bidder 2, $1,376.40; 7, $1,455; 11*, $1,335; 20, $1,575; 29, $1,521.50; 31, $1,987.50.

Class 7.—Cylinder oil:
Bidder 3, $787.50; 9, $700; 10, $950; 14*, $673; 16, $900; 28, $950.

Class 8.—Garnet paper:
Bidder 4, $231.10; 5, $229.30; 13, $230.05; 14, $230.15; 17, $227.20; 19, $229.25; 22, $240.30; 23, $234.20; 27,* $212; 32, $239.55; 33, $251.55.

*Accepted. †No award. ‡Informal.

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated November 28, 1896; opened December 15, 1896—Continued.

Class 9.—Wrenches:
Bidder 4, $774.94; 5, $762.45; 12, $807.12; 13, $770.79; 15, $748.26; 17, $836.13; 18, $723.09; 19, $771.56; 21, $743.40; 22, $779.42; 27, $742.49; 32,* $718.80; 33, $745.92.

Class 10.—Polishing paste:
Bidder 8, $2.750; 13, $4,250; 14, $2,900; 19, $3,735; 27,* $2,500; 28, $5,906.25.

Class 11—Alcohol:
Bidder 1, $9,800; 6,* $9,440; 26, $9,666.

Class 12.—Linseed oil:
Bidder 14,* $1,737; 16, $2,000: 20, $1,850.

Class 13.—Hammock canvas:
Bidder 4, $2,949.50; 13, $2.868.75; 19, $2,862.80; 22, $2,932.50; 25, $5,879.37; 28,* $2,885.05.

Schedule of proposals for supplies for the Mare Island Navy-Yard, under Bureau advertisement dated November 20, 1896; opened December 29, 1896.

Bidder 1. Geo. W. Gibbs Co.
2. Merchant & Co.
3. Gladding McBean Co.
4. Baker & Hamilton.
5. James Clendenin.
6. Geo. L. Neville.
7. S. C. Forsaith Machine Co.
8. Dunham, Carrigan & Hayden Co.
9. Frank W. McNeal.
10. Frank H. Woodruff.
11. Selby Smelting and Lead Works.
12. Miller, Sloss & Scott.
13. Wm. Dimond & Co.
14. Holbrook, Merrill & Stetson.
15. Jacob Levi, jr.
16. O. S. Orrick.
17. Chas. P. Fonda.
18. American Tube Works.
19. Bowers Rubber Co.
20. Manhattan Supply Co.
21. Milton H. Cook.
22. Hozapfels Composition Co.
23. Joseph Ehrman.
24. N. Clark & Sons.
25. A. J. Marcus.
26. Chas. J. Andrys.
27. G. M. Josslyn & Co.
28. J. H. Parrott.
29. Geo. D. Cooper.
30. Phelps & Arnold.
31. Chas. F. Fay.
32. A. S. Carman.
33. Pacific Rolling Mills Co.
34. W. W. Montague.
35. Wm. Walker.
36. Geo. T. Hawley.
37. Pacific Marine Supply Co.

Class 1.—Burs, rivets, etc.:
Bidder 4, *$27.26; 8, $137.26; 12, $154.94; 14, $145.82; 31, $135.66; 36, $145.85.

Class 2.—Nails, etc.:
Bidder 4, $820.70; 8, $828.62; 12, $786.25; 36, *$770.18.

Class 3.—Rigging leather:
Bidder 12, $129.25; 21, *$82.50; 25, $96.25.

Class 4.—Upholsterers' leather:
Bidder 12, $143.28; 29, *123.25.

Class 5.—Bolt copper, etc.:
Bidder 2, $209.84; 5, *$205.14; 6, $209.84; 8, $226.34; 12, $223.61; 14, $209.84; 20, $209.84; 31, $215; 34, $224.30; 36, $226.60.

Class 6.—Hoop iron, etc.:
Bidder 1, *$84.50; 8, $93.82; 12, $97.66; 14, $86.62; 31, $85; 34, $87.25.

Class 7.—Angle steel, etc.:
Bidder 12, *$457.70.

Class 8.—Rivet steel:
Bidder 12, *$87.25; 33, $87.50.

Class 9.—Iron:
Bidder 1, $277.20; 8, $277.19; 12, $277.09; 17, $277.20; 30, $277.20; 33, *$243.70.

Class 10.—Norway iron:
Bidder 1, $47.80; 8, *$47.76; 12, $47.79; 17, $47.80; 30, $47.80.

Class 11.—Rubber gaskets:
Bidder 19, *$210.07.

Class 12.—Iron pipe:
Bidder 8, $122.69; 12, $129.77; 14, $118.18; 30, $134.11; 31, *$115.73; 34, $120.52.

Class 13.—Brass pipe:
Bidder 2, $702.83; 5, $702.83; 6, $702.83; 12, *$701.44; 14, $702.83; 18, $702.83; 20, $702.83; 34, $736.17.

Class 14.—Copper pipe:
Bidder 2, $796.57; 5, $796.57; 6, $796.57; 12, *$793.32; 14, $796.57; 18, $796.57; 20, $796.57; 34, $836.36.

Class 15.—Steel tubing:
Bidder 12, $106.

Class 16.—Oars:
Bidder 9, $270; 26, $270; 27, *$205.20.

Class 17.—Tools:
Bidder 4, $30; 8, *$26.80; 12, 31.92; 36, $66.16.

Class 18.—Sugar:
Bidder 15, *$2,460; 23, $2,562.50.

Class 19.—Tomatoes:
Bidder 15, *$143.50; 23, $152.50; 37, $151.

Class 20.—Ingot copper:
Bidder 5, $6,015; 7, $6,455; 10, *$5,985; 12, $6,620; 14, $6,125.

Class 21.—Slab zinc:
Bidder 5, $2,495; 7, $2,832.80; 11, *$2,435; 12, $4,240; 14, 2,500; 34, informal.

Class 22.—Rolled zinc:
Bidder 7, $518.49; 12, $565.74; 14, $459.90; 34, *$441.50.

Class 23.—Tobin bronze:
Bidder 5, $373; 12, $379.60; 14, *$353; 34, $370; 36, $368.

Class 24.—Cut nails:
Bidder 4, *$142.74; 5, $180.40; 8, $158.80; 12, $158.70; 36, $164.20.

Class 25.—Lumber:
Bidder 28, $1.776.60; 32, *$1,701.92; 35, $2,000.

Class 26.—Broken stone:†
Bidder —, $8,062.50; 32, $6,568.50.

Class 27.—Bricks:
Bidder 28, *$195.50; 32, $204.70; 35, $230.

Class 28.—Sand:
Bidder 28, $623; 32, *$609; 35, $705.

Class 29.—Sewer pipe, etc.:
Bidder 3, $606.88; 12, *$601.21; 24, $606.20; 28, $614; 35, $776.48.

Class 30.—Cement:†
Bidder 28, $4,500; 32, $4.301.60.

Class 31.—Mild steel:
Bidder 1, $147.40; 7, $203.20; 12, $168.68; 31, $171.60; 34, *$137.28.

Class 32.—Paint:
Bidder 16, *$5,300.

Class 33.—Paint:
Bidder 13, *$5,000; 22, $4.550.

* Accepted.

† No award.

Schedule of proposals for supplies for the Washington Navy-Yard, under Bureau advertisement dated December 12, 1896; opened December 29, 1896.

Bidder 1. Brooklyn Hardware and Sporting Goods Co.
2. Duke & Smith.
3. Nathan B. Gaskill.
4. Patterson, Gottfried & Hunter.
5. W. T. Galleher & Bro.
6. John A. Hardenbergh.
7. C. H. Bull.
8. Thos. W. Smith.
9. Reilly & Walker.
Bidder 10. Grayson & Cain.

Class 1.—Screws:
Bidder 1, $81.55; 4, *$55; 6, $84.21.
Class 2.—Spruce, etc.:
Bidder 3, $229.10; 5, $257.40; 8, $191.60; 9, *$159; 10, $179.20.
Class 3.—White pine:
Bidder 2, $1,859; 3, $1,828; 5, *$1,718.50; 7, $2,152.25; 8, $1,808; 9, $1,737.50; 10, $1,782.

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated December 10, 1896; opened December 29, 1896.

Bidder 1. J. H. Sternbergh.
2. E. B. Thurber.
3. B. F. Sturtevant.
4. A. A. Ahren.
5. Newman & Co.
6. F. J. Dessoir.
7. S. C. Forsaith Machine Co.
8. Carnegie Steel Co.
9. Sidney Thursby.
10. F. Foehrenbach Co.
11. Robt. H. Stall.
12. Eastman Co.
13. Fiske Bros. Refining Co.
14. Frank W. McNeal.
15. Harris & Holmes.
16. Thomas W. Powers.
17. Chas. F. Sullivan.
18. Manhattan Supply Co.
19. C. G. Caughey.
20. Benj. Atha & Illingworth Co.
21. Buffalo Forge Co.
22. General Electric Co.
23. Austin P. Brown.
24. Park Bros. & Co.
25. Cavanagh Bros. & Co.
26. E. F. Cumming.
27. Mitchell & Cooper.
28. F. H. Woodruff.
29. Wilkinson, Gaddes & Co.
30. H. J. Heinz Co.
31. General Equipment and Engineering Co.
32. John J. O'Rorke.

Class 1.—Biscuit:
Bidder 6, $1,450; 11, $1,362.50; 15, *$1,155.
Class 2.—Pickles:
Bidder 10, $892.11; 30, *$742.50.
Class 3.—Tea:
Bidder 2, $2,837; 4, $2,970; 6, $2,147; 13, $1,945; 14, $2,772; 16, $2,708; 19, $2,625; 26, $2,697; 27, *$2,450; 29, $2,800; 32, $2,647.
Class 4.†—Sausage meat:
Bidder 6, $1,094; 9, $1,045; 12, $900; 17, $1,019; 19, $979.
Class 5.†—Sirup:
Bidder 4, $448.50; 6, $405.90; 19, $468.90; 32, $455.10.
Class 9.—Electric exhausters:
Bidder 3, *$500; 7, $920; 22, $762.28.
Class 7.—Ventilating fans:
Bidder 3, *$395; 7, $595; 21, $625.
Class 8.—Ventilating fan:
Bidder 3, *$295; 7, $412; 21, $515.
Class 9.—Ventilating fan:
Bidder 3, *$395; 7, $498; 21, $635.10.
Class 10.—Ventilating fans:
Bidder 3, *$350; 7, $590; 21, $600.
Class 11.—Steel plates:
Bidder 8, $835.99; 23, *$822.06; 28, $1,081.06.
Class 12.—Angle and flat steel:
Bidder 8, *$609.18; 28, $640.
Class 13.—Round bar steel:
Bidder 1, $96; 8, *$90; 20, $120; 24, $93; 28, $132.
Class 14.—Forgings:
Bidder 1, *$180; 20, $600.
Class 15.—Laundry soap:
Bidder 5, $306; 6, *$300; 13, $334.80; 14, $321.60; 18, $327.60; 25, $302.40; 29, $310.80; 31, $408.20.

Schedule of proposals for supplies for the Mare Island Navy-Yard, under Bureau advertisement dated December 8, 1896; opened January 5, 1897.

Bidder 1. Austin P. Brown, Washington, D. C.
2. Dunham, Carrigan & Hayden Co., 17 Beale street, San Francisco.
3. Pancoast & Rogers, 28 Platt street, New York City.
4. George L. Neville, Portsmouth, Va.
5. Manhattan Supply Co., 141 Chambers street, New York City.
6. Holbrook, Merrill & Stetson, Market and Beale streets, San Francisco.
7. Lukens Iron and Steel Co., Coatesville, Pa.
8. American Tube Works, 137 Milk street, Boston, Mass.
9. The Allison Manufacturing Co., Thirty-second and Walnut streets, Philadelphia.
10. Merchant & Co., 517 Arch street, Philadelphia.
11. The Carnegie Steel Co., Pittsburg, Pa.
12. Wm. Walker, Vallejo, Cal.
13. J. H. Sternbergh, Reading, Pa.
14. The Reading Iron Co., 518 Washington street, Reading, Pa.
15. Wheeler Condenser and Engineering Co., 120 Liberty street, New York City.
16. A. S. Carman, 903 Linden street, Oakland, Cal.
17. J. H. Powell, 22 Market street, San Francisco.
Bidder 18. Miller, Sloss & Scott, 18 Fremont street, San Francisco.
19. Boston Woven Hose and Rubber Co., 275 Devonshire street, Boston, Mass.

Class 1.—Rivets:
Bidder 13, *$261.90; 2, $287.73; 18, $419.04.
Class 2.—Bolts and nuts:
Bidder 13, *$227.30.
Class 3.—Bar steel: No bids.
Class 4.—Steel plates:
Bidder 2, *$2,494.25; 7, $2,510.38; 1, $2,856.55; 11, $3,010.30; 18, $4,235.93.
Class 5.—Boiler tubes:
Bidder 2, *$1,974.40; 3, $2,102.36; 9, $2,117.16; 14, $2,162.76; 18, $2,514.88.
Class 6.—Condenser tubes:
Bidder 4, *$5,459.40; 5, $5,459.40; 8, $5,459.40; 10, $5,459.40; 18, $5,746.74; 15, $6,664.
Class 7.†—Copper pipe:
Bidder 4, $171.08; 5, $171.08; 6, $171.08; 8, $171.08; 10, $171.08; 18, $180.30.
Class 8.—Rolled zinc:
Bidder 18, *$55.63.
Class 9.—Valves:
Bidder 18, *$150.38; 19, $184.09.
Class 10.—Lumber:
Bidder 16, *$214.50; 17, $248.50; 12, $263.

*Accepted.

†No award.

Schedule of proposals for supplies for the naval station at Key West, Fla., under Bureau advertisement dated December 21, 1896; opened January 5, 1897.

Coal.—Bids for delivering 1,500 tons of anthracite coal at the Key West Naval Station, were received at the Bureau of Supplies and Accounts, Navy Department, on January 5, as follows:

Samuel G. French, 1 Broadway, New York City, $5.38 per ton, Wilkesbarre coal.

T. Bennett Phillips, 1414 S. Penn Square, Philadelphia, $5.28 per ton, Mahanoy, Shenandoah, or Morea coal.

John Miller, Washington, D. C., $5.40 per ton, Wilbur-Lehigh; * 5.30 per ton for Plymouth white ash or Natalie red ash.

Coal—Continued.

Peale, Peacock & Kerr, 411 Walnut street, Philadelphia, $5.29 per ton for Reading or Lehigh white ash.

E. B. Townsend, 27 Kilby street, Boston, Mass., $5.23 per ton for Lackawanna white ash.

Francis J. Dessoir, 56 Hudson street, New York City, Lehigh and Wilkesbarre Coal Company's mine, Wyoming region, $5.52 for white ash and $5.42 for red ash.

Joseph K. Wells, 1 Broadway, New York City, $5.39 per ton, Wilkesbarre coal.

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated January 2, 1897; opened January 19, 1897.

Bidder 1. Wm. Galloupe, 79 North street, Boston. Informal; no guaranty.
2. Revere Rubber Co., New York City. Informal; no guaranty.
3. A. J. Wickens, 394 Broome street, New York City.
4. John A. Hardenbergh, 109 Duane street, New York City.
5. Thos. Kelly, 958 Third avenue, New York City.
6. Edward Eicke, 157 Canal street, New York City.
7. Joseph A. McKee, 12 Platt street, New York City.
8. E. Hazard Aikman, 261 Pearl street, New York City.
9. G. B. Merrill, 326 Broadway, New York City.
10. E. P. Earle, 29 Liberty street, New York City.
11. F. P. May & Co., Washington, D. C.
12. Henry McShane Manufacturing Co., Baltimore, Md. Informal; no guaranty.
13. Samuel Heymann, 13 Jay street, New York City.
14. John Simmons Co., Box 1822, New York City.
15. R. P. Rowe, 82 Hancock street, Brooklyn, N. Y.
16. John T. Brooks, 161 Maiden lane, New York City.
17. Thomas C. Reine, jr., 570 Atlantic avenue, Brooklyn, N. Y.
18. Anglo-American Varnish Co., 63 Johnson street, Newark, N. J.
19. Porter's Son & Co., 164 Water street, New York City.
20. National Leather Belting Co., 7 Ferry street, New York City.
21. C. A. Woolsey Paint and Color Co., Jersey City, N. J.
22. Cavanaugh Bros. & Knapp, 358 Greenwich street, New York City.
23. Acme Belting Co., 52 Dey street, New York City.
24. Morse Burtis, 52 John street, New York City.
25. Bliven & Carrington, 251 Front street, New York City.
26. Sidney Thursby, 73 Hudson street, New York City.
27. Ira B. White, 309 Main street, Norfolk, Va.
28. James Chadwick & Bros., Limited, Greenville, Jersey City, N. J.
29. Patterson, Gottfried & Hunter, 146 Center street, New York City.
30. Pancoast & Rogers, 28 Platt street, New York City.
31. Jacob Voelbel, 316 S. Fourth street, Brooklyn, N. Y.
32. Shoemaker & Busch, 602 Arch street, Philadelphia, Pa.
33. Wm. Westlake, 43 Leonard street, New York City.
34. Thomas G. Hood, 1100 Market street, Philadelphia.

Bidder 35. Chas. H. Gillespie, 125 Dey street, New York City.
36. The Sutro Bros. Braid Co., 127 Spring street, New York City.
37. Murphy Varnish Co., Chestnut and McWhorter streets, Newark, N. J.
38. Rufus P. Clarke, Washington, D. C.
39. Joseph Loeb, 317 Garden street, Philadelphia.
40. National Distributing Co., 3 Water street, New York City.
41. Francis Harral, 85 Chambers street, New York City.
42. The Columbia Rubber Works Co., 66 Reade street, New York City.
43. James Langmuir, 117 Fulton street, New York City.
44. H. A. Rogers, 19 John street, New York City.
45. Boston Woven Hose and Rubber Co., 275 Devonshire street, Boston, Mass.
46. Geo. W. Bailey, 38 Burling slip, New York City.
47. C. J. Caughey, 128 Franklin street, New York City. Informal; no guaranty.
48. Wm. H. Horstmann Co., Fifth and Cherry streets, Philadelphia.
49. Fiske Bros. Refining Co., 59 Water street, New York City.
50. Brooklyn Hardware and Sporting Goods Co., 601 Fulton street, Brooklyn.
51. New Jersey Car Spring and Rubber Co., Box M, Jersey City, N. J.
52. Geo. L. Neville, Portsmouth, Va.
53. Edw. F. Keating, 82 Center street, New York City.
54. Elliot B. Thurber, Produce Exchange, New York City.
55. John J. O'Rorke, 61 Hudson street, New York City.
56. Leo Loeb, 32 Ferry street, New York City.
57. Chas. A. Moore, 111 Liberty street, New York City.
58. John Wanamaker, Thirteenth and Chestnut streets, Philadelphia.
59. Franklin M. Horton, 394 Fulton street, Brooklyn, N. Y.
60. Manhattan Oil Co., 51 Front street, New York City.
61. James Reilly Repair and Supply Co., 229 West street, New York City.
62. Chas. M. Childs & Co., 225 Pearl street, New York City.
63. Frank W. McNeal, 80 Reade street, New York City.
64. Philip D. Armor, jr., 205 La Salle street, Chicago.
65. Excelsior Varnish Works, 381 Pearl street, New York City.
66. Wm. Porters Sons, 271 Pearl street, New York City.
67. W. H. Caffrey, 43 John street, New York City.
68. Manhattan Supply Co., 141 Chambers street, New York City.
69. Union Supply Co., 15 Lafayette Place, New York City.

*Accepted.

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated January 2, 1897; opened January 19, 1897—Continued.

Bidder 70. Frederick F. Lyden, Box 23841, New York City.
71. Wm. Wilson, 400 Broadway, New York City.
72. John Lucas & Co., 322 Race street, Philadelphia.
73. Coldwell Lead Co., 63 Centre street, New York City.
74. Henry Putzel, 116 Wall street, New York City.
75. The American Distributing Co., 165 Pearl street, New York City.
76. Max Frank, 40 Spruce street, New York City.

Class 1.—Twist and silk:
Bidder 16, *$557.50; 48, $575; 5, $700; 33, $706.50; 38, $714; 4. $715; 63, $715.

Class 2.—Spool cotton:
Bidder 5, *$757.50; 68, $810; 9, $822; 33, $841; 63, $872.50; 71, $915; 38, $950; 59, $1,025; 58, $1,027.50; 4, $1,037.50.

Class 3.—Bone buttons:
Bidder 34, *$54.48; 48, $57.96; 9, $60.48; 58, $63; 4, $85.52; 50, $105.84; 59, $346.50.

Class 4.—Twills:
Bidder 58, *$438.40; 70, $440; 33, $459.20; 9, $460; 4, $464; 68, $467.20; 38, $476; 54, $478.80, 59, $540; 5, $578.40.

Class 5.—Squilgees:
Bidder 63, *$305; 41, $325; 61, $325; 44, $350; 54, $457.50; 68, $475; 52, $875.

Class 6.—Hand and leg irons:
Bidder 70, *$1,569; 63, $1,716; 68, $1,735; 52, $1,758; 33, $1,802; 4, $1,834; 22, $1,870; 54, $1,904; 27, $1,983.

Class 7.—Plate powder:
Bidder 70, *$16.56; 61, $17.80; 17, $18; 63, $18; 54, $19.44; 59, $19.44; 68, $20.16; 33, $20.16; 4, $23.04.

Class 8.—Spikes:
Bidder 52, *$54; 50, $55; 68, $55.40; 63, $55.50; 54, $56.50; 57, $57; 44, $57.40; 41, $61.

Class 9.—Hose washers:
Bidder 63, *$15; 42, $17.40; 68, $22; 52, $22.50; 61, $24.75; 51, $27.50; 54, $35.

Class 10.—Hose fittings:
Bidder 63, *$922.20; 57, $937; 45, $1,109.50; 61, $1,344.75; 51, $1,401.75; 54, $1,643.75; 68, $3,244.80; 52, $3,801; 33, $4,018.50.

Class 11.—Fishing leads:
Bidder 50, *$5; 61, $6.67; 54, $7.50.

Class 12.—Unbleached cotton drill:
Bidder 68, *$1,646; 33, $1,698; 5, $1,720; 34, $1,724; 70, $1,730; 54, $2,400.

Class 13.—Worsted tape:
Bidder 58, *$75; 39, $100; 68, $180; 63, $190; 9, $200; 36, $220; 33, $240.

†Class 14.—Knife lanyards:
Bidder 5, $788; 6, $833.34; 48, $858; 50, $875; 39, $1,050.

Class 15.—Corn brooms:
Bidder 22, *$477; 70, $501; 68, $507; 33, $531; 58, $552; 50, $555; 63, $561; 61, $624; 4, $546; 58, $552; 3, $630; 44, $720.

†Class 16.—Coir brushes:
Bidder 31, $190; 63, $254; 61, $255; 41, $264; 44, $275; 70, $288; 68, $293; 4, $300.

Class 17.—Wire brushes:
Bidder 63, *$81; 61, $81.25; 44, $83.50; 41, $90; 29, $90; 4, $105; 27, $109.50; 68, $111.50; 52, $300.

Class 18.—Bath brick:
Bidder 70, *$70; 22, $72.50; 61, $73.80; 55, $74.70; 41, $78.60; 58, $80; 17, $80; 50, $81; 32, $87; 68, $87; 4, $90; 63, $120.

Class 19.—Lantern globes:
Bidder 19, *$59.76; 66, $76.56; 8, $96.

Class 20.—Leather belting:
Bidder 20, *$419; 23, $545; 50, $547; 29, $550; 63, $590; 68, $590.10; 52, $591.76; 56, $653.50; 41, $678.50

Class 21.—Leather:
Bidder 76, *$196.80; 52, $219.40; 20, $221.80; 29, $255.65; 57, $235.90; 50, $249.40; 68, $273.42.

Class 22.—Sheet lead:
Bidder 15, *$272.69; 52, $274.09; 27, $279.32; 57, $280.42; 61, $280.42; 73, $280.71; 63, $290.95; 68, $294.47; 53, $295.19; 54, $325.03.

Class 23.—Gum packing:
Bidder 51, *$195; 42, $260; 52, $325; 67, $377; 14, $442; 49, $455; 61, $500.50; 45, $520; 27, $564.20; 68, $572; 63, $780; 50, $811.20.

Class 24.—Tuck's packing:
Bidder 42, *$108; 67, $116; 52, $140; 45, $170; 51, $180; 27, $192; 68, $192.80; 61, $206.

Class 25.—Packing:
Bidder 44, *$942.50; 33, $952.50; 68, $962.20; 61, $977.14; 41, $1,005; 67, $1,052; 51, $1,054.50; 27, $1,135; 14, $1,223; 49, $1,394.50; 4, $1,447.50; 52, $1,645.

Class 26.—Alcohol:
Bidder 40, *$11,687.50; 75, $11,800.

Class 27.—Linseed oil:
Bidder 15, *$3,272; 49, $3,294; 10, $3,450; 62, $3,450; 60, $3,540; 21, $4,100.

Class 28.—Gum shellac:
Bidder 49, *$9,519; 43, $9,582; 54, $10,110; 62, $10,647.

Class 29.—Japan drier and varnish:
Bidder 62, *$3,810; 35, $4,080; 32, $4,090; 43, $4,095; 54, $4,180; 18, $4,250; 69, $4,400; 21, $4,575; 46, $4,900; 72, $5,000; 65, $5,100; 17, $5,940; 37, $6,010.

Class 30.—30,000 gallons lard oil:
Bidder 49, *$11,983.50; 64, $13,110; 25, $13,320; 13, $13,350; 60, $13,725; 70, $14,025.

Class 31.—10,000 gallons turpentine:
Bidder 49, *$3,444.50; 62, $4,000; 52, $4,050.

Class 32.—Sal soda:
Bidder 70, *$158; 49, $180; 61, $237.50; 63, $240; 17, $287; 32, $290; 68, $324; 43, $399.

Class 33.—Pumice stone:
Bidder 61, *$38.50; 54, $42; 41, $43.75; 32, $47.25; 70, $49; 17, $70.

Class 34.—Steam pipe:
Bidder 61, *$175.20; 24, $175.48; 30, $178.77; 53, $178.96; 34, $181.68; 86, $182.74; 44, $188.81; 52, $192.66.

Class 35.—Valves:
Bidder 27, *$881.40; 52, $900.82; 61, $901.14; 44, $904.48, 24, $922.99; 63, $968.53; 34, $977.83; 14, $1,053.79; 68, $1,102.90; 50, $1,153.81.

Class 36.—Pipe fittings:
Bidder 34, *$1,213.35; 53, $1,308.12; 4, $1,306.15; 14, $1,337.79; 50, $1,398.64; 27, $1,414; 68, $1,516.13; 24, $1,832.37; 52, $1,740.26; 61, $1,801.07; 44, $1,827.86.

Class 37.—Files:
Bidder 61, *$1,595.48; 57, $1,615; 29, $1,644.02; 63, $1,669.85; 50, $1,685.42; 68, $1,714.68; 34, $1,774.76; 67, $1,774.76; 11, $1,800.52; 7, $2,107.54; 5, $2,207.48.

Class 38.—Tinned vegetables:
Bidder 55, $1,479; 74, $1,689; 70, *1,728; 26, $1,983.

* Accepted.

† No award.

Schedule of proposals for supplies for the Mare Island Navy-Yard under Bureau advertisement dated December 24, 1896; opened January 19, 1897.

Bidder 1. Dunham, Carrigan & Hayden Co., 17 Beale street, San Francisco, Cal.
2. Frank H. Woodruff, 257 Broadway, New York City.
3. Lukens Iron and Steel Co., Coatesville, Pa.
4. Carnegie Steel Co., Limited, Pittsburg, Pa.
5. J. H. Sternbergh, Reading, Pa.
6. Austin P. Brown, Washington, D. C.

Class 1.—Nuts:
Bidder 5, * $81; 3, $136.80.

Class 2.—Steel plates:
Bidder 6, * $1,012; 3, $1,018; 1, $1,030.50; 4, $1,085.95; 2, $1,080.

Class 3.—Steel angles:
Bidder 4, * $264.50; 3, $287.50; 2, $330.62; 1, $339.25.

Class 4.—Rivot rod:
Bidder 4, * $126.50; 5, $151.25; 1, $162.25; 2, $165; 3, $198.

Class 5.—Flat iron:
Bidder 1, * $68.40; 3, $68.40; 5, $77.40; 2, $99.

Schedule of proposals for supplies for the New York Navy-Yard under Bureau advertisement dated January 9, 1897; opened January 26, 1897.

Bidder 1. William E. Uptegrove & Bro., 465 East Tenth street, New York City.
2. Fiske Bros. Refining Co., 59 Water street, New York City.
3. Duke & Smith, Norfolk, Va.
4. Francis J. Law, 358 Greenwich street, New York City.
5. Patterson, Gottfried & Hunter, Limited, 146 Centre street, New York City.
6. George Meier & Co., 12 Barclay street, New York City.
7. E. B. Thurber, Produce Exchange, New York City.
8. Brooklyn Hardware and Sporting Goods Co., 601 Fulton street, Brooklyn, N. Y.
9. S. C. Forsaith Machine Co., Manchester, N. H.
10. John Lucas & Co., 302 Race street, Philadelphia.
11. Enoch L. Richardson, 437 Produce Exchange, New York City.
12. James A. McDonald, 67 Beekman street, New York City.
13. James Reilly Repair and Supply Co., 227 West street, New York City.
14. Charles E. Pell, 24 Tompkins street, New York City.
15. Wetherill & Bro., 126 South Thirtieth street, Philadelphia.
16. James Langmuir, 117 Fulton street, New York City.
17. Watson & Pittinger, 420 Carroll street, Brooklyn, N. Y.
18. Francis Harral, 85 Chambers street, New York City.
19. Shoemaker & Busch, 602 Arch street, Philadelphia.
20. C. A. Woolsey Paint and Color Co., 100 Hudson street, Jersey City, N. J.
21. Manhattan Supply Co., 141 Chambers street, New York City.
22. Chas. M. Childs & Co., 225 Pearl street, New York City.
23. Wm. Westlake, 43 Leonard street, New York City.
24. Frank E. Clark, 1061 Bedford avenue, Brooklyn, N. Y.
25. Chas. O'Reagan, 252 Forty-fourth street, Brooklyn, N. Y.
26. Thos. C. Raine, jr., 570 Atlantic avenue, Brooklyn, N. Y.
27. John A. Hardenberg, 109 Duane street, New York City.
28. Leon Hirsh & Son, 370 Greenwich street, New York City.
29. Robt. Murray, 24 Duane st., New York City.
30. Benjamin Gillespie, 728 Third avenue, New York City.

Class 1.—Screws:
Bidder 23, * $236.70; 27, $236.90; 29, $241.71; 30, $248.64; 8, $251.83; 13, $254.14; 18, $254.38; 5, $258.84.

Class 2.—Hardware:
Bidder 5, * $710.25; 13, $787.49; 8, $821.87; 18, $845.59; 30, $849.90; 27, $878.92.

Class 3.—White pine:
Bidder 17, * $665; 14, $724.50; 3, $800; 1, $850; 25, $1,000; 11, $1,277.50.

Class 4.—Yellow poplar:
Bidder 17, * $238; 14, $249.80; 3, $295; 1, $315; 7, $357.50; 25, $380; 11, $500.

Class 5.—Hickory butts:
Bidder 4, * $130; 14, $224; 17, $235; 7, $243; 11, $272; 25, $300.

Class 6.—Paints:
Bidder 20, * $1,116.50; 22, $1,449.50; 10, $1,451.60; 19, $1,530.25; 16, $1,562.

Class 7.—Carbonate of potash:
Bidder 28, * $210; 19, $262.50; 26, $269.10.

Class 8.—Gold leaf:
Bidder 10, * $1,310.50; 13, $1,318; 19, $1,349.50; 9, $1,354.50; 16, $1,355; 20, $1,375; 6, $1,393.50; 7, $1,414; 27, $1,425; 22, $1,537.50.

Class 9.—White lead:
Bidder 24, * $6,173.72; 2, $6,208; 22, $6,255; 20, $6,400; 10, $6,595; 16, $7,097; 15, $7,225.

Class 10.—Tools:
Bidder 18, * $865.39; 13, $881.01; 5, $1,088.23; 30, $1,089.93; 8, $1,164.14.

Class 11.—Emory cloth:
Bidder 12, * $395.25; 5, $424.80; 13, $429.20; 21, $445; 8, $454.85; 30, $457.80; 10, $459; 7, $465.50; 28, $493.10.

Class 12.—Saws:
Bidder 18, * $216; 8, $216.48; 5, $225.00; 13, $232.92; 30, $237.92; 27, $258.60; 21, $259.20; 9, $280.32.

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated January 16, 1897; opened February 2, 1897.

Bidder 1. O. G. Smith.
2. U. T. Hungerford.
3. Merchant & Co.
4. Bridgeport Brass Co.
5. Ansonia Brass and Copper Co.
6. Manhattan Supply Co.
7. Park Bro. & Co.
8. John Wanamaker.
9. New Bedford Copper Co.
10. D. A. Tower.
11. American Tube Works.
12. Patterson, Godfried & Hunter.
13. Wm. Westlake.
14. W. L. Bilisoly.
15. Geo. L. Neville.
16. James Clendenin.
17. Arthur Mountain & Co.
18. A. P. Swoyer.
19. F. F. Leyden.

Class 1.—Note paper:
Bidder 6, $1,358; 8, * $1,737.15; 10, $1,244.70; 17, $1,406.50.

Class 2.—Typewriter paper:
Bidder 6, * $650.40; 8, $757.48; 10, $711.22; 17, $672.64.

* Accepted

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated January 16, 1897; opened February 2, 1897—Continued.

Class 3.—Miscellaneous paper:
Bidder 6, $78; 8, $119; 10, $92.50; 14, *$87.40; 17, $80.50; 19, $2,460.

Class 4.—Memorandum books:
Bidder 6, *$1,237.90; 10, $1,451.62; 14, $1,378.52; 17, $1,277.88.

Class 5.—Pens:
Bidder 6, $491.28; 8, $473.88; 10, *$468.06; 14, $515.88; 19, $549.

Class 6.—Erasers, etc.:
Bidder 6, $247.52; 8, $333.48; 10, *$247.28; 14, $284.52; 19, $275.64.

Class 7.—Inks, etc.:
Bidder 6, *$402.74; 10, $406.86; 14, $423.06; 19, $472.14.

Class 8.—Miscellaneous stationery:
Bidder 6, $1,475.07; 10, *$1,271.78; 14, $1,712.54; 19, $1,709.84.

Class 9.—Mimeograph and supplies:
Bidder 1, $743.37; 6, $728.28; 10, $699.66; 14, *$696.76; 19, $1,078.09.

Class 10.—Braziers' copper:
Bidder 2, informal; 3, $915.15; 5, $915.15; 6, $945.65; 7, $915.15; 9, $915.15; 12, $1,006.67; 15, *915.15; 16, $915.15; 18, $915.15.

Class 11.—Copper tubes:
Bidder 3, $3,229.43; 4, $3,212.37; 6, $3,187.11; 10, *$3,147.49; 13, $3,258.89; 15, $3,329.66; 16, $3,438.52.

Schedule of proposals for supplies for the Washington Navy-Yard, under Bureau advertisement dated January 22, 1897; opened February 6, 1897.

Bidder 1. Benj. Atha and Illingworth Co.
2. Bethlehem Iron Co.
3. Austin P. Brown.
4. American Steel Casting Co.
5. Midvale Steel Co.

Class 1.—Steel forgings:
Bidder 2, $2,489.76; 5, *$2,358.72.

Class 2.—Nickel steel forgings:
Bidder 2, $8,067.12; 5, *$8,061.28.

Class 3.—Steel castings:
Bidder 1, *$3,169.82; 2, $7,924.56; 3, $3,773.60; 4, $3,569.83; 5, $7,547.20.

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated January 28, 1897; opened February 16, 1897.

Bidder 1. Western Electric Co., Greenwich and Thames streets, New York City.
2. Boston Woven Hose and Rubber Co., 275 Devonshire street, Boston, Mass.
3. Thos. Kelly, 958 Third avenue, New York City.
4. Bramhall, Deane & Co., 262 Water street, New York City.
5. Atlas Cement Co., 143 Liberty street, New York City.
6. E. B. Thurber, Produce Exchange, New York City.
7. Jacob Voelbel, 316 S. Fourth street, Brooklyn, N. Y.
8. Landers, Frary & Clark, New Britain, Conn.
9. Manhattan Supply Co., 141 Chambers street, New York City.
10. Patterson, Gottfried & Hunter, Limited, 146 Centre street, New York City.
11. P. Cavanagh, 358 Greenwich street, New York City.
12. New Jersey Car Spring and Rubber Co., Jersey City, N. J.
13. Columbia Rubber Works Co., 66 Reade street, New York City.
14. Thos. C. Raine, jr., 570 Atlantic avenue, Brooklyn, N. Y.
15. Kueffel & Esser Co., 127 Fulton street, New York City. Informal, no guarantee.
16. Joseph H. Colyer, foot of Washington street, Brooklyn, N. Y.
17. J. B. Morrell, agent, 75 Front street, New York City.
18. Alonzo E. Deitz, 75 Clymer street, Brooklyn.
19. Armstrong Cork Co., 45 Murray street, New York City. Informal, no guarantee.
20. James K. Shaw, 25 Duane street, New York City.
21. Wilcox Silver Plate Co., Meriden, Conn.
22. General Electric Co., 44 Broad street, New York City.
23. H. C. Fox, 43 John street, New York City.
24. Henry S. Manning, 111 Liberty street, New York City.
25. John A. Hardenbergh, 109 Duane street, New York City.
26. Queen & Co., Incorporated, Philadelphia.
27. Francis Harral, 85 Chambers street, New York City.
28. Brooklyn Hardware and Sporting Goods Co., 601 Fulton street, Brooklyn.
29. Wm. Porter's Sons, 271 Pearl street, New York City.
30. Geo. L. Neville, Portsmouth, Va.
31. Frank W. McNeal, 80 Reade street, New York City.

Class 1.—Tar brushes:
Bidder 11, *$47.52; 9, $50.25; 25, $69.12; 31, $72.36; 6, $74.88.

Class 2.—Bake pans:
Bidder 11, *$50.40; 27, $55.68; 4, $71.04; 9, $81.12; 10, $93.60.

Class 3.—Kitchen utensils:
Bidder 9, *$139.68; 11, $158.40; 27, $159.60; 4, $162.24; 10, $175.88.

Class 4.—Kitchen utensils:
Bidder 11, *$53.52; 9, $67.20; 27, $67.68; 10, $107.94; 4, $115.92.

Class 5.—Kitchen utensils:
Bidder 11, *$336.96; 9, $361.80; 27, $366.62; 4, $371.16.

Class 6.—Kitchen utensils:
Bidder 27, *$173.52; 9, $179.16; 11, $182.04; 4, $195.96.

Class 7.—Table knives:
Bidder 25, *$166; 20, $175; 27, $175; 14, $184.80; 6, $185; 8, $190; 9, $196.60; 10, $218.

Class 8.—Table forks:
Bidder 20, *$159; 25, $166.66; 9, $174; 14, $254.20; 6, $256; 10, $300.

Class 9.—Table spoons:
Bidder 20, *$159; 25, $166.66; 9, $174; 14, $254.80; 6, $260; 10, $300.

Class 10.—Enameled ware:
Bidder 25, *$447.50; 20, $462.50; 9, $4.69; 6, $480; 11, $490; 27, $495; 14, $500; 31, $515.

Class 11.—Upper-deck fire hose:
Bidder 2, *$595; 13, $605; 12, $607.50.

Class 12.—Hose washers:
Bidder 9, *$10.50; 31, $15; 12, $18.25; 6, $20; 2, $21.25; 13, $27.50; 27, $28.75.

Class 13.—Ship chandlery:
Bidder 27, *$273.70; 9, $289.38; 6, $324.18.

Class 14.—Hand and leg irons:
Bidder 9, *$1,041.12; 30, $1,052.64; 25, $1,097.28; 6, $1,108.80.

Class 15.—Mail pouches:
Bidder 31, *$72; 9, $74.60; 25, $80; 6, $94.

Class 16.—China ware for captain.
Bidder 20, *$312.86.

Class 17.—Glassware for captain:
Bidder 20, *$91.50; 9, $136.

*Accepted.

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated January 28, 1897; opened February 16, 1897—Continued.

Class 18.—Plated ware, hollow:
Bidder 20, †$211.44.
Class 19.—Plated ware, flat:
Bidder 20, †$750.36; 9, $836.18.
Class 20.—China ware, warrant and junior officers:
Bidder 20, *$89.50.
Class 21.—Electrical supplies:
Bidder 22, *$5,625.07; 9, $6,061.86; 1, $6,357.12.
Class 22.—Enameled cloths:
Bidder 6, *$27; 25, $33.84; 11, $34.92; 9, $42.84; 14, $86.40.
Class 23.—Bath tubs, etc.:
Bidder 11, *$120; 27, $160.20; 6, $164.20; 9, $166.36.
Class 24.—Hardware:
Bidder 27, *$49.64; 9, $54.16; 25, $62.04; 6, $71.60.
Class 25.—Nautical instruments:
No bids.
Class 26.—Candle stands:
Bidder 29, *$205.20; 21, $276; 20, $357.
Class 27.—Upper-deck fire hose:
Bidder 2, *$1,071; 13, $1,089; 12, $1,093.50.
Class 28.—Wash-deck hose:
Bidder 27, *$144; 2, $162; 13, $240; 12, $300.
Class 29.—Suction hose:
Bidder 2, *$351; 12, $556.20; 13, $769.50.
Class 30.—Rubber life belts:
Bidder 9, *$2,992.80; 13, $3,045.
Class 31.—Ship fenders:
Bidder 6, $165.92; 25, *$149; 9, $155.80; 27, $156; 24, $160; 28, $163.
Class 32.—Tools:
Bidder 9, *$146.34; 27, $189.22.
Class 33.—Boat stores:
Bidder 4, *$132.
Class 34.—Coaling trucks:
Bidder 23, *$103.20; 25, $107.40; 9, $112.80; 6, $117; 27, $134.40.
Class 35.—Drawing material.
Bidder 9, *$61.68; 26, $106.12.
Class 36.—Ship chandlery:
Bidder 24, *$276.08; 25, $309.20; 9, $312.10; 6, $325.20; 27, $353.76.
Class 37.—Blank books:
Bidder 9, *$68; $31, $85.76.
Class 38.—Gymnasium supplies:
Bidder 28, *$402.12.
Class 39.—Scrubbing brushes:
Bidder 9, $228; 7, *$200; 25, $216; 11, $285; 31, $316.
Class 40.—File cards:
Bidder 27, *$81.60; 9, $133.92.
Class 41.—Portland cement:
Bidder 5, *$2,030; 16, $2,150; 9, $2,470; 31, $3,000.
Class 42.—Padlocks:
Bidder 9, *$381.60; 27, $405.60; 10, $408; 18, $410.40.
Class 43.—Rubber mats:
Bidder 9, $324; 31, *$302.40; 12, $313.92; 27, $358.20; 25, $384; 13, $424.80; 30, $480; 2, $720.
Class 44:—Cotton twine:
Bidder 11, *$222.75; 17, $224.25; 9, $228; 3, $232.50; 31, $234.75; 6, $236.25; 25, $270.

Schedule of proposals for supplies for the New York Navy-Yard under Bureau advertisement dated February 6, 1897; opened February 23, 1897.

Bidder 1. Wm. Porter's Sons, 271 Pearl street, New York City.
2. Herman Heidelberg & Co., 708 Broadway, New York City.
3. Pancoast & Rogers, 28 Platt street, New York City.
4. Edward F. Keating, 82 Center street, New York City.
5. E. Hazard Aikman, 261 Pearl street, New York City.
6. Francis Harral, 85 Chambers street, New York City.
7. Manhattan Supply Co., 141 Chambers street, New York City.
8. S. C. Forsaith Machine Co., Manchester, N. H.
9. Porter's Son & Co., 225 Pearl street, New York City.
10. Columbia Rubber Works Co., 66 Reade street, New York City.
11. J. H. Sternbergh, Reading, Pa.
12. B. Y. Pippey & Co., 45 Leonard street, New York City.
Bidder 13. Brooklyn Hardware and Sporting Goods Co., 601 Fulton street, Brooklyn.
14. New Jersey Car Spring and Rubber Co., Jersey City, N. J.
15. James W. Cromwell, 1 Green street, New York City.

Class 1.—12,000 pairs each drawers and undershirts:
Bidder 2, $14,880; 15, *$19,188; 12, $20,040; 7, $21,885.60.
Class 2.—Bolts and nuts:
Bidder 11, *$34.02; 3, $41.25.
Class 3.—Pipe fittings:
Bidder 4, ‡$705.44; 3, *$721.13; 8, $822.92; 13 $838.69; 7, $1,360.25.
Class 4.—Hardware:
Bidder 6, *$51.51; 7, $58.70; 13, $74.55.
Class 5.—Tools:
Bidder 7, *$438.75; 6, $560.84.
Class 6.—Rubber fire hose:
Bidder 14, *$168; 10, $200.
Class 7.—Lamps and fixtures:
Bidder 1, *$4,626; 9, $4,668.60; 5, $4,729.20.

*Accepted. †No award. ‡Informal.

Schedule of proposals for supplies for the Mare Island Navy-Yard under Bureau advertisement dated January 21, 1897; opened February 23, 1897.

Bidder 1. Chas. M. Childs & Co., 225 Pearl street, New York City.
2. Wm. H. Leahy, 916 Market street, San Francisco, Cal.
3. W. R. Grace & Co., P. O. box 2637, San Francisco.
4. W. D. Dennett, Sixth and Townsend streets, San Francisco.
5. Chas. M. Yates, 709 Front street, San Francisco.
6. John Lucas & Co., 322 Race street, Philadelphia.
7. James Langmuir, 117 Fulton street, New York City.
8. F. H. Ames Co., 3 California street, San Francisco.
9. W. P. Fuller & Co., 21 Front street, San Francisco.
10. Jacob Levi, jr., 117 Market street, San Francisco.
11. Leon Blum, 201 California street, San Francisco.
12. J. H. Powell, 22 Market street, San Francisco.
13. Henry Sewell Co., 211 Dunn street, San Francisco.
Bidder 14. Pacific Vinegar and Pickle Works, 12 Davis street, San Francisco.
15. A. S. Carman, 903 Linden street, Oakland, Cal.
16. Johnson & Peterson, Oakland, Cal.
17. Henry Mohr, 218 Front street, San Francisco.
18. C. A. Woolsey Paint and Color Co., P. O. box 96, Jersey City, N. J.

Class 1.—Broken stone:
Bidder 16, *$5,531.25; 15, $5,962.50; 2, $6,337.50; 12, $7,500; 13, $7,500.

Class 2.—Portland cement:
Bidder 16, *$4,468.80; 3, $4,560; 15, $4,848.80; 12, $4,902; 13, $4,940; 2, $4,940.

Class 3.—20,000 pounds salt beef:
Bidder 11, *$1,094; 17, $1,100; 4, $1,195.

Class 4.—150,000 pounds corned beef:
Bidder 4, †$1,346.25; 8, $1,650; 19, *$1,537.50.

Class 5.—30,000 pounds salt pork:
Bidder 4, *$1,942.50; 11, $2,172; 17, $2,325.

Class 6.—1,000 gallons vinegar:
Bidder 14, *$160; 10, $168; 13, $175.

Class 7.—Paints:
Bidder 18, *$209; 9, $215; 6, $230; 1, $240; 5, $248; 7, $271.

Schedule of proposals for supplies for the League Island Navy-Yard, under Bureau advertisement dated February 5, 1897; opened February 21, 1897.

Bidder 1. Walter L. Clark, 136 Liberty street, New York City.
2. P. P. Bowles, 705 Arch street, Philadelphia, Pa.
3. Manhattan Supply Co., 141 Chambers street, New York City.
4. Hilles & Jones Co., Ninth and Church streets, Wilmington, Del.
5. Manning, Maxwell & Moore, 111 Liberty street, New York City.
6. Hill, Clarke & Co., 156 Oliver street, Boston, Mass.
7. U. Baird Machinery Co., 123 Water street, Pittsburg, Pa.
8. The Cox & Sons Co., 215 Race street, Philadelphia.
9. S. C. Forsaith Machine Co., Manchester, N. H.
10. Fitchburg Machine Works, Fitchburg, Mass.
11. Wm. Sellers & Co., Incorporated, 1600 Hamilton street, Philadelphia.
Bidder 12. Appleton Manufacturing Co., Thirteenth and Thompson streets, Philadelphia.

Class 1.—One radial drill:
Bidder 1, *$620; 11, $695; 6, $700; 9, $708; 3, $720; 2, $925; 5.†

Class 2.—Two engine lathes:
Bidder 3, *$1,290; 1, $1,690; 2, $1,796; 11, $2,205; 5,† 10.†

Class 3.—One threading and cutting machine:
Bidder 2, *$474; 9, $499.12; 3, $523; 8, $660; 7, $675; 6, $684; 5, $736; 1, $744.

Class 4.—Boiler maker's punch and shears:
Bidder 7, †$637; 5, *$690; 4, $690; 1, $695; 7, $855; 9, $1,119.50; 6, $1,134; 3, $1,343; 11, $1,565.

Class 5.—One emery tooth grinder:
Bidder 6, †$70; 2, *$84; 5, $84; 7, $85; 1, $88; 9, $94.50; 11, $455; 12.†

Class 6.—One drilling machine:
Bidder 1, *$175; 5, $195; 7, $200; 11, $445; 9, $894.50; 10, $975.

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated February 13, 1897; opened March 2, 1897.

Bidder 1. Davis Coal and Coke Co., 1 Broadway, New York City.
2. Samuel G. French, 1 Broadway, New York City.
3. Clearfield Bituminous Coal Corporation, 1 Broadway, New York City.
4. Peale, Peacock & Kerr, Incorporated, 411 Walnut street, Philadelphia.
5. Joseph K. Wells, 1 Broadway, New York City.
6. Francis J. Dessoir, 56 Hudson street, New York City.
7. A. M. Wittenberg, 1 Broadway, New York City.
8. United Colliers Co., 1 Broadway, New York City.
9. David Duncan & Son, 1 Broadway, New York City.
10. T. Bennett Phillips, 1414 South Penn square, Philadelphia.
11. Chas. E. Pell, 24 Tompkins street, New York City.
12. Watson & Pittenger, 420 Carroll street, Brooklyn, N. Y.
13. A. H. Ahrens, 79 Dey street, New York City.
Bidder 14. C. J. Caughey, 128 Franklin street, New York City.
15. Hyde Windlass Co., Bath, Me.
16, 17, and 18. American Ship Windlass Co., Providence, R. I.
19. John J. O'Rorke, 61 Hudson street, New York City.

Class 1.—6,000 tons bituminous coal:
Bidder 3, *$2 per ton, Empire Big Vein smokeless coal; 5, $2.07, Empire coal; 8, $2.08, Mount Vernon, Nos. 6 and 7, Moshannon vein, Clearfield County, Pa.; 10, $2.09, Imperial Clearfield coal; 7, $2.12½, Colonial Clearfield; 9, $2.18, Pardee, Pa.; 2, $2.30, from Webster mines, Pa.; 1, $2.35, Thomas bituminous, Upper Potomac region; 4, $2.45, Old Pardee Moshannon vein, Clearfield region; 1, $2.60, Elk Garden Big Vein Cumberland coal.

Class 2.—1 steam windlass:
Bidder 16, †$1,250; 15, *$1,447.50; 17, $1,775; 18, $2,300.

Class 3.—18,600 feet yellow-pine decking:
Bidder 6, *$810; 12, $936; 11, $1,080.

Class 4.—5,000 gallons sirup:
Bidder 14, $675; 19, *$778; 13, $797.50; 6, $895.

* Accepted. † Informal.

Schedule of proposals for supplies for the Washington Navy-Yard under Bureau advertisement dated February 12, 1897; opened March 2, 1897.

Bidder 1. J. S. Hoskins, 33 Marine Bank, Baltimore.
2. Joseph B. Reid, Brentsville, Va.
3. L. A. Clark, Washington.
4. R. H. Hood, Washington.
5. B. C. Alexander, Minniville, Va.
6. Riley & Walker, Washington.
7. Geo. A. Shehan, Washington.
8. E. E. Jackson Co., Washington.
9. L. Ledman, Washington.
10. Duke & Smith, Portsmouth, Va.
11. Geo. L. Neville, Portsmouth, Va.
12. Church & Stephenson, Washington.
13. Wm. A. West, Portsmouth, Va.
Bidder 14. W. T. Galliher & Bro., Washington.
15. Nathan B. Gaskill, 501 Girard Building, Philadelphia.
16. C. H. Bull, Norfolk, Va.

Class 1.—160,000 feet yellow pine sheet piling:
Bidder 16,* $2,560; 7, $2,640; 6, $3,032; 15, $3,120; 10, $3,192; 8, $3,280; 11, $3,596; 4, $3,688.40; 14, $4,000.

Class 2.—562 Virginia piles:
Bidder 9, * $584.48; 3, $747.46; 2, $753.08; 12, $800.85; 5, $837.38; 11, $837.38; 6, $843; 7, $843; 8, $887.96; 14, $927.30; 1, $1,011.60; 15, $1,095; 16, $1,348.80; 4, $1,371.28; 10, $1,496.32; 13, $1,967.

Schedule of proposals for supplies for the Norfolk Navy-Yard under Bureau advertisement dated February 18, 1897; opened March 9, 1897.

Bidder 1. The Manhattan Supply Co., 141 Chambers street, New York City.
2. J. B. Morrell, 75 Front street, New York City.
3. Williams Manufacturing Co., Northampton, Mass.
4. Wm. A. West, Portsmouth, Va.
5. American Tube Works, 137 Milk street, Boston, Mass.
6. Francis Harral, 85 Chambers street, New York City.
7. Philip Walsh & Sons, Maryland avenue and Oliver street, Baltimore, Md.
8. E. V. White & Co., box 518, Norfolk, Va.
9. Acme Belting Co., 52 Dey street, New York City.
10. Elias Pohl, Elizabeth street, below Snyder avenue, Philadelphia.
11. John Dunphy & Sons, 29 Ferry street, New York City. Informal; no guarantee.
12. John Simmons Co., 106 Centre street, New York City.
13. Max Frank, 40 Spruce street, New York City.
14. Stevenson Bro. & Co., 132 South Second street, Philadelphia.
15. Frank H. Woodruff, box 169, New York City.
16. Paul A. Davis, jr., 136 North Water street, Philadelphia. Informal; no guarantee.
17. Porter, McNeal & Co., 277 Water street, Norfolk, Va.
18. Charles A. Schieren & Co., 45 Ferry street, New York City.
19. Wm. F. Webb, 67 Beekman street, New York City.
20. Duke & Smith, 509 Columbia Building, Norfolk, Va.
21. Bridgeport Brass Co., Bridgeport, Conn.
22. Cooke, Clark & Co., box 232, Norfolk, Va.
23. Henry Walke, box 216, Norfolk, Va.
24. J. B. Kendall, Washington, D. C.
25. James Reilly Repair and Supply Co., 229 West street, New York City.
26. John A. Hardenburgh, 100 Duane street, New York City.
27. Merchant & Co., Incorporated, 517 Arch street, Philadelphia.
28. New Jersey Car Spring and Rubber Co., Jersey City, N. J.
29. Richard Cromwell, Lombard street and Cheapside, Baltimore, Md.
30. Francis J. Dessoir, 56 Hudson street, New York City.
31. J. H. Sternbergh, Reading, Pa.
32. Porter's Son & Co., 194 Water street, New York City.
33. Ansonia Brass and Copper Co., 19 Cliff street, New York City.
34. Mitchell & Reed, Washington, D. C.
35. Henry A. Rogers, 19 John street, New York City.
36. Morse Burtis, 52 John street, New York City.
37. Bradford Lumber Co., Norfolk, Va. Informal; no guarantee.
Bidder 38. National Leather Belting Co., 7 Ferry street, New York City.
39. Watson & Pettinger, 420 Carroll street, Brooklyn, N. Y.
40. Edward F. Keating, 82 Centre street, New York City.
41. Thomas Kelly, 958 Third avenue, New York City.
42. C. H. Bull, box 434, Norfolk, Va.
43. Geo. L. Neville, Portsmouth, Va.
44. Frank W. McNeal, 80 Reade street, New York City.
45. Brooklyn Hardware and Sporting Goods Co., 601 Fulton street, Brooklyn, N. Y.
46. Leo Loeb, 32 Ferry street, New York City.
47. Charles S. Conner, 282 Water street, Norfolk, Va.

Class 1.—Bolts and nuts:
Bidder 43,* $306.70; 40, $327.71; 24, $334.50; 17, $344.40; 1, $371.20; 23, $462.80; 31, $499.

Class 2.—3 dozen ostrich feather dusters:
Bidder 25,* $30.45; 44, $33.30; 6, $33.45; 1, $35.10; 43, $36; 23, $44.25; 45, $44.37; 17, $47.70.

Class 3.—Cotton canvas, etc.:
Bidder 2, * $1,162; 29, $1,204.73; 41, $1,244.90; 30, $1,264.64; 26, $1,271.83; 1, $1,287.89; 17, $1,405.88.

Class 4.—6 dozen rubber mats:
Bidder 6, * $148.32; 28, $148.50; 25, $149.10; 44, $151.20; 17, $161.40; 23, $179.40; 43, $180; 1, $182.40; 14, $146.

Class 5.—1,000 coal baskets:
Bidder 8, * $495; 3, $500; 1, $544; 43, $545; 30, $600.

Class 6.—Padlocks:
Bidder 6, * $278.40; 1, $286.98; 17, $291.50; 45, $322.38; 43, $408.

Class 7.—Brads, nails, etc.:
Bidder 43, * $281.90; 17, $285.45; 1, $296.40; 6, $323.65; 25, $328.48; 22, $361.82.

Class 8.—12 dozen hand lamps:
Bidder 15, * $43.20; 25, $46.80; 17, $48; 43, $54; 1, $55.20; 45, $57; 32, $60.

Class 9.—600 feet leather belting:
Bidder 38, * $119.25; 45, $134.25; 18, $134.25; 9, $139.50; 43, $146.10; 1, $155.40; 46, $159; 17, $161; 23, $163.50; 8, 195.

Class 10.—120 sides leather:
Bidder 38, * $564.02; 13, $579.60; 18, $590.10; 45, $599.20; 43, $620.10; 1, $638.95; 14, $671.95.

Class 11.—White ash and cedar:
Bidder 39, * $1,741.50; 4, $1,758; 7, $1,887; 42, $2,002; 20, $2,048.50; 47, $2,299; 43, $2,340.

Class 12.—White oak:
Bidder 42, * $714; 20, $756.50; 39, $969; 43, $1,020; 7, $1,121.

Class 13.—Yellow pine:
Bidder 42, * $1,198.50; 39, $1,295.40; 43, $1,307; 4, $1,575; 20, $1,635; 7, $1,798.50.

Class 14.—White pine:
Bidder 20, * $2,495; 7, $2,556.25; 14, $2,655; 43, $2,750; 10, $2,825; 4, $3,200; 42, $3,375; 47, $4,415.

*Accepted.

Schedule of proposals for supplies for the Norfolk Navy-Yard, under Bureau advertisement dated February 18. 1897; opened March 9, 1897—Continued.

Class 15.—3 boxes sheet tin:
Bidder 45, $40.20; 25, *$35.55; 43, $75; 27, $36; 1, $49.20.

Class 16.—Tobin bronze:
Bidder 33, *$1,022.98.

Class 17.—Millboard and packing:
Bidder 17, *$439.68; 25, $486; 28, $504.80; 6, $572.30; 23, $598.25; 1, $601; 35, informal; 43, $781.80.

Class 18.—Gum camphor and shellac:
Bidder 25, $271.50; 17, *$253; 43, $340.

Class 19.—Rosin, coal tar, etc.:
Bidder 43, *$87.50; 17, $150.

Class 20.—Steam pipe:
Bidder 23, *$248.96; 26, $249.70: 12, $250.65; 45, $257.10; 40, $264.26; 43, $266.40; 25, $268; 15, $276.19; 34, $280.56; 1, $305.50.

Class 21.—Brass pipe:
Bidder 25, $818; 40, *$745.64; 12, $747.86; 1, $777.19; 43, $783.54; 27, $786.26; 21, $796.52; 26, $818; 5, $818.10; 34, $868.25.

Class 22.—Brass elbows, tees, unions, etc.:
Bidder 34, *$1,427.28; 40, $1,460.04; 12, $1,488.90; 17, $1,527.16; 1, $1,731.70; 25, $1,827.36; 43, $1,844.10; 23, $1,922.70; 36, $1,924.28; 26, $1,940.04; 15, $2,027.16; 45, $2,382.92.

Class 23.—24 dozen scoop shovels:
Bidder 6, *$157.20; 1, $166.32; 43, $167.76; 17, $170.40; 25, $172.32; 23, $198.

Class 24.—Emery cloth:
Bidder 23, $255; 26, *$103.98; 25, $106.92; 6, $106.95; $19, $107.10; 1, $120.90; 35, $121.68; 17, $125.40; 43, $129.90.

Class 25.—Brad awls, soldering irons, etc.:
Bidder 25, *$133.16; 6, $158.46; 43, $187.68; 17, $207.39; 1, $227.80.

Class 26.—Wrenches:
Bidder 15, *$201.85; 35, $227.24; 25, $227.48; 6, $239.97; 17, $246.77; 12, $246.81; 1, $248.30; 40, $248.60; 24, $255.60; 34, $259.08; 23, $259.45; 8, $274.60; 43, $285.09.

Class 27.—1,000 pounds white Castile soap:
Bidder 25, *$93.75; 43, $118; 17, $120; 14, $130.

Class 28.—100 pounds sponges:
Bidder 43, *$60; 17, $60; 1, $73.90; 44, $125; 30, $175.

Schedules of proposals for supplies for the Washington Navy-Yard, under Bureau advertisement dated February 19, 1897; opened March 9, 1897.

Class 1.—Steel forgings:
The Bethlehem Iron Co., South Bethlehem, Pa.* $32,916.48

Class 1.—Steel forgings—Continued.
The Midvale Steel Co., box 1606, Philadelphia $35,875.68

Schedule of proposals for supplies for the Mare Island Navy-Yard, under Bureau advertisement dated February 15, 1897; opened March 16, 1897.

Class 1.—Teak:
W. H. Leahy, 505 Parrot Building, San Francisco, Cal.* $4,280

Schedules of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated February 25, 1897; opened March 16, 1897.

Bidder 1. India Rubber Comb Co., 9 Mercer street, New York City.
2. Brainard & Armstrong Co., 100 Union street, New London, Conn.
3. John J. O'Rorke, 61 Hudson street, New York City.
4. American Ship Windlass Co., Providence, R. I.
5. Francis J. Dessoir, 56 Hudson street, New York City.
6. H. A. Forbes & Co., 130 Water street, New York City.
7. Wm. H. Horstmann Co., Fifth and Cherry streets, Philadelphia.
8. Chas. F. Sullivan, 48 W. Broadway, New York City.
9. Sidney Thursby, 73 Hudson street, New York City.
10. Manhattan Oil Co., 51 Front street, New York City.
11. Westerhoff Bros. & Napier, 23 Green street, New York City.
12. John A. Hardenbergh, 109 Duane street, New York City.
13. Manhattan Supply Co., 141 Chambers street, New York City.
14. Peter Comstock, P. O. box 85, New York City.
15. Hyde Windlass Co., Bath, Me.
16. Smith, Kline & French Co., 35 Arch street, Philadelphia.
17. Thomas Kelly, 958 Third avenue, New York City.
18. C. J. Caughey, 128 Franklin street, New York City.
19. Conshohocken Woolen Co., West Conshohocken, Pa.
20. Frank McNeal, 80 Reade street, New York City.
21. Wendell, Fay & Co., 56 Summer street, Boston, Mass.
22. Warner Ells, 5 Worth street, New York City.
23. Thomas G. Hood, 1100 Market street, Philadelphia.
24. B. Y. Pippey & Co., 45 Leonard street, New York City.
25. Frederick W. Fink, box 3083, New York City.
26. Samuel Heymann, 23 Tenth avenue, New York City.
27. Fiske Bros. Refining Co., 59 Water street, New York City.
28. Chesebrough Manufacturing Co., 24 State street, New York City.
29. Sullivan, Vail & Co., 329 Broadway, New York City.
30. Oliver Crosby, 63 S. Robert street, St. Paul, Minn.

Class 1.—Hand scrubbing brushes:
Bidder 12, *$150; 5, $155; 13, $156.80; 20, $159.80.

Class 2.—Deck scrubbing brushes:
Bidder 12, *$27; 20, $27.36; 27, $43.80.

Class 3.—Flax twine:
Bidder 13, *$143.50; 12, $165; 17, $200.

Class 4.—Dust pans:
Bidder 13, *$670.20.

Class 5 —Vaseline:
Bidder 27, *$87.40; 5, $110; 28, $120; 25, $200.

Class 6.—Glycerin:
Bidder 27, *$1,430; 5, $1,440; 13, $1,440; 16, $1,490; 25, *$1,490; 20, $1,530; 10, $1,575; 6, $1,600.

Class 7.—10,000 neckerchiefs:
Bidder 17, *$.9448; 7, $1.0117; 11, $1.0375; 13, $1.074.

Class 8.—10,000 No. 2 rubber buttons:
Bidder 1, 3.11 cents; 23, 3.18 cents; 17, 3.35 cents; 13, *$.03489.

Class 9.—20,000 yards trouser cloth:
Bidder 24, *$1.37; 21, $1.4747; 29, $1.4768; 5, $1.4947; 19, $1.58; 13, $1.674.

* Accepted.

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated February 25, 1897; opened March 16, 1897—Continued.

Class 10.—20,000 pieces linen tape:
Bidder 17, *$228.33; 7, $290; 13, $380.
Class 11.—20,000 spools sewing silk:
Bidder 2, 2⅜ cents; 17, 3 cents.
Class 12.—15,000 pounds candles:
Bidder 3, *$.0779; 13, $.0823; 5, $.0825; 10, $.09; 14, $.09; 22, $.09; 27, $.0945.
Class 13.—100,000 pounds sugar:
Bidder 5, *$.04479; 3, $.04483; 18, $.04483.
Class 14.—40,000 pounds tinned ham:
Bidder 8, 10¼ cents; 18, 10.37 cents; 26, 12.07 cents; 9, 12¼ cents.
Class 15.—2 hoisting winches:
Bidder 4, *$1.390; 15, $1.450; 30, $1.930.

Schedule of proposals for supplies for the Washington Navy-Yard, under Bureau advertisement dated March 13, 1897; opened March 30, 1897.

Bidder 1. American Steel Casting Co., Thurlow, Pa.
2. Lebanon Chain Works, Lebanon, Pa.
3. J. W. Paxson Co., Pier 45 North, Philadelphia, Pa.
4. Austin P. Brown, Washington, D. C.
5. Whiting Foundry and Equipment Co., Harvey, Ill.
6. J. B. Kendall, Washington, D. C.
7. H. Stanley Wood, 63 South Robert street, St. Paul, Minn.
8. Benj. Atha & Illingworth Co., Newark, N. J.
9. Penn Steel Casting and Machine Co., Chester, Pa.
10 Midvale Steel Co., Philadelphia.
11. The Franklin Steel Casting Co., Franklin, Pa.

Class 1.—Steel castings:
Bidder 9, *$2,901.27; 4, $2,931.27; 1, $3,951.61; 11, $4,000; 8, $4,010.37; 10, $5,141.50.
Class 2.—Steel castings:
Bidder 4, *$14,206.73; 9, $14,206.73; 11, $19,050; 8, $21,435.97; 1, $22,209.17; 10, $25,176.48.
Class 3.—Foundry ladles:
Bidder 3, *$178.45; 6, $187.73; 5, $204.25.
Class 4.—Chain slings:
Bidder 2, *$52; 6, $105.92; 3, $160.64; 5, $167.
Class 5.—Turn tables, etc.:
Bidder 6, *$881.65; 5, $940.50; 3, $1,184.64.
Class 6.—1,200 feet steel rail:
Bidder 6, *$81.60; 5, $102.
Class 7.—Trucks:
Bidder 6, *$123; 5, $144; 3, $281.61; 7, $300.

Schedule of proposals for supplies for the Mare Island Navy-Yard, under Bureau advertisement dated February 27, 1897; opened March 30, 1897.

Bidder 1. Wm. Walker, Vallejo, Cal.
2. Merchant & Co., 517 Arch street, Philadelphia.
3. Holbrook, Merrill & Stetson, Market and Beale street, San Francisco.
4. Frank H. Woodruff, Box 169, New York City.
5. Bethlehem Iron Co., South Bethlehem, Pa.
6. Geo. L. Neville, Portsmouth, Va.
7. A. S. Carman, 1326 Chestnut street, Oakland, Cal.
8. James Clendenin, 111 S. Gay street, Baltimore, Md.
9. Chas. F. Tay, 616 Battery street, San Francisco.
10. Fiske Bros. Refining Co., 59 Water street, New York City.
11. Thos. A. Dowling, 219 Front street, San Francisco.
12. Manfred Brandenstein, 21 First street, San Francisco.
13. Chas. C. Nichols, 404 Battery street, San Francisco.
14. Miller, Sloss & Scott, 22 Fremont street, San Francisco.
15. B. F. Garrett, 138 Fremont street, San Francisco.
16. Baker & Hamilton, Box 2323, San Francisco.
17. Code, Elfelt & Co., 116 California street, San Francisco.
18. Albert Frank, 406 Battery street, San Francisco.
19. Louis Getz, 111 California street, San Francisco.
20. Pacific Marine Supply Co., 215 California street, San Francisco.
21. Milton H. Cook, 317 Mission street, San Francisco.
22. Joseph Ehrman, 108 Fremont street, San Francisco.
23. Jacob Levi, jr., 117 Market street, San Francisco.
24. Wm. H. Leahy, 505 Parrott building, San Francisco.
25. George T. Hawley, San Francisco.
26. The Pacific Vinegar and Pickle Works, 122 Davis street, San Francisco.
27. Carnegie Steel Co., Pittsburg, Pa.
28. J. H. Powell, 22 Market street, San Francisco.
29. Bolander & Perkins, 115 Main street, San Francisco.
Bidder 30. Dunham, Carrigan & Hayden Co., 17 Beale street, San Francisco.
31. E. A. Howard & Co., Oakland, Cal.
32. Manhattan Supply Co., 141 Chambers street, San Francisco.
33. Scott & Van Arsdale Lumber Co., Fifth and Brannon streets, San Francisco. Informal; no guarantee.

Class 1.—10,000 pounds candles:
Bidder 23, *$887; 10, $1,098.
Class 1.—10,000 pounds tinned vegetables:
Bidder 23, *$530; 11, $545; 22, $562.50; 17, $627
Class 3.—5,000 pounds pickles:
Bidder 26, *$182.50; 23, $206.25; 11, $210; 12, $312.50.
Class 4.—10,000 pounds tinned ham:
No bid.
Class 5.—10,000 pounds tinned mutton:
Bidder 23, *$280.
Class 6.—1,000 pounds dried apples:
Bidder 20, *$53.40; 11, $62.50; 23, $65; 22, $70.
Class 7.—1,000 pounds peaches:
Bidder 23, *$75; 20, $78.20; 22, $78.75; 11, $87.50.
Class 8.—1,000 pounds raisins:
Bidder 11, *$52.50; 23, $55; 20, $61.70; 22, $63.75.
Class 9.—1,000 pounds prunes:
Bidder 22, *$51; 20, $56.20; 23, $65; 11, $67.50; 19, $70.
Class 10.—2,500 pounds tinned salmon:
Bidder 23, *$220; 19, $237.50.
Class 11.—1,000 gallons sirup:
Bidder 23, *$146.50.
Class 12.—5,000 pounds rice:
Bidder 22, *$227.50; 11, $231; 23, $242.
Class 13.—Steel plates:
Bidder 5, *$1,019.10; 14, $1,061.76; 30, $1,061.76; 27, $1,090.20; 4, $1,180.28; 6, $2,370.
Class 14.—Steel angles:
Bidder 27, *$379.50; 30, $404.25; 14, $491.70; 4, $808.50; 6, $825.
Class 15.—Norway iron, copper burrs, etc.:
Bidder 9, *$40.45; 16, $54.50; 30, $62.72; 25, $80.60; 14, $82.10.
Class 16.—Nails, etc.:
Bidder 3, *$408.45; 16, $411.14; 30, $421.07; 14, $426.14; 25, $431.56.
Class 17.—35 sides rigging leather:
Bidder 13, *$112.50; 21, $112.50; 18, $116.25; 14, $172.50.
Class 18.—Lumber:
Bidder 7, *$2,455.90; 24, $2,667.50; 29, $2,796.25; 1, $3,027.50; 28, $3,034.50; 31, $3,359.

*Accepted.

Schedule of proposals for supplies for the Mare Island Navy-Yard, under Bureau advertisement dated February 27, 1897; opened March 30, 1897—Continued.

Class 19.—Yellow bark oak:
Bidder 7, *$584.02; 28, $676; 29, $698.75; 1, $747.50; 24, $747.50; 31, $780.
Class 20.—Port Orford cedar:
Bidder 7, *$609.70; 29, $682.50; 1, $728; 24, $741; 28, $741.
Class 21.—Mahogany:
Bidder 24, *$144; 7, $149.70; 1, $150; 28, $162; 29, $180.
Class 22.—19,000 feet laurel:
Bidder 7, *$169.10; 24, $182.50; 28, $207.10; 1, $209; 29, $266.
Class 23.—3,500 feet teak:
Bidder 24, *$749; 7, $875; 29, $875; 28, $1,050.
Class 24.—500 inches boat knees:
Bidder 7, *$324.50; 28, $375; 1, $400; 29, $450.
Class 25.—Copper and brass:
Bidder 2, *$377.20; 3, $377.20; 6, $377.20; 8, $377.20; 4, $384.96; 9, $385.50; 15, $388.27; 32, $394.53; 30, $403.50; 25, $403.75.
Class 26.—16 sheets galvanized iron:
Bidder 3, *$34.37; 9, $35.75; 30, $41.25; 14, $42.90; 4, $44.

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated March 20, 1897; opened April 6, 1897.

Bidder 1. Herman Heidelberg & Co., 708 Broadway, New York City.
2. Manhattan Supply Co., 141 Chambers street, New York City.
3. Wm. H. Horstman & Co., Fifth and Cherry streets, Philadelphia.
4. Francis J. Dessoir, 56 Hudson street, New York City.
5. Thomas G. Hood, 1100 Market street, Philadelphia.
6. John Wanamaker, Twelfth and Market streets, Philadelphia.
7. John A. Hardenburgh, 109 Duane street, New York City.
8. Thomas Kelly, 958 Third avenue, New York City.

Class 1.—200,000 pounds salt-water soap:
Bidder 2, *$0.03469; 6, $0.0375; 4, $0.0389.
Class 2.—2,000 yards lining, flannel:
Bidder 7, *$1,000; 6, $2,000.
Class 3.—1,000 yards lining, canvas:
Bidder 1, *$85; 7, $90; 6, $91.60; 8, $95; 2, $107.
Class 4.—1,500 yards cheese cloth:
Bidder 1, *$18.75; 7, $26.25; 6, $45; 8, $45.
Class 5.—200 dozen sheets wadding:
Bidder 1, *$47; 6, $48; 7, $49; 8, $51; 2, $54.
Class 6.—500 dozen spools basting cotton:
Bidder 6, *$64.60; 1, $76.25; 8, $77.50; 2, $83.50.
Class 7.—100 dozen pieces stay binding:
Bidder 6, *$27.22; 8, $31.50; 1, $35; 3, $35.
Class 8.—2,000 silk laces:
Bidder 3, *$65; 2, $68.80; 6, $69.80, 8, $80.
Class 9.—25 pounds mounting cord:
Bidder 6, *$12.50.
Class 10.—1,000 gross bone buttons:
Bidder 6, *$105; 1, $105.63; 5, $110.20; 3, $115; 8, $115; 7, $123.75.

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated March 26, 1897; opened April 13, 1897.

Bidder 1. James K. Shaw, 25 Duane street, New York City.
2. Fearing, Hall & Whiton, 91 Commercial street, Boston, Mass.
3. Francis J. Dessoir, 56 Hudson street, New York City.
4. Queen & Co., Incorporated, 1010 Chestnut street, Philadelphia, Pa.
5. Geo. L. Neville, Portsmouth, Va.
6. Joseph Cavanagh, 358 Greenwich street, New York City.
7. James Reilly Repair and Supply Co., 225 West street, New York City
8. G. K. Sheridan & Co., box 1601, New York City.
9. Colwell Lead Co., 63 Center street, New York City.
10. Morse Burtis, 52 John street, New York City.
11. Jesse Lewisohn, 81 Fulton street, New York City.
12. Manhattan Supply Co., 141 Chambers street, New York City.
13. A. W. Millian, Stewart Building, New York City.
14. Merchant & Co., Incorporated, 517 Arch street, Philadelphia.
15. Francis Harral, 85 Chambers street, New York City.
16. Henry A. Rogers, 19 John street, New York City.
17. Chas. A. Moore, 111 Liberty street, New York City.
18. John Wanamaker, Broadway and Tenth street, New York City.
19. Western Electric Co., Thames and Greenwich streets, New York City.
20. John A. Hardenburgh, 109 Duane street, New York City.
21. E. B. Thurber, Produce Exchange Building, New York City.
22. Western Electrical Instrument Co., 114 William street, Newark, N. J.
23. Thos. Kelly, 958 Third avenue, New York City.

Class 1.—Cotton canvas:
Bidder 18, *$8,062.50; 12, $8,210; 7, $8,299.30; 3, $8,335; 8, $8,339.20; 20, $8,342.50; 2, $8,529; 23, $8,904.
Class 2.—Cotton twine:
Bidder 6, *$147.90; 3, $149.70; 12, $152; 21, $152.50; 7, $155; 18, $165; 2, $170; 20, $180.
Class 3.—Brass grommets:
Bidder 5, *$138.50; 20, $139.45; 17, $150.40; 15, $150.50; 12, $157.50; 16, $166.50; 21, $167.30.
Class 4.—10,000 pounds pig tin:
Bidder 14, $1,360; 11, *$1,358; 9, $1,375; 16, $1,420; 12, $1,500.
Class 5.—Cups, bowls, and plates:
Bidder 12, *$2,160; 18, $2,160; 6, $2,192.50; 20, $2,195; 1, $2,210; 21, $2,325.
Class 6.—Twelve testing sets:
Bidder 4, *$879; 19, $903; 12, $906.
Class 7.—Ammeters and voltmeters:
Bidder 19, *$1,542; 13, $1,602; 22, $1,620; 12, $1,672.80.
Class 8.—Tachometers and counters:
Bidder 4, *$351; 10, $366; 19, $384; 12, $386.40.
Class 9.—Engine indicators, etc.:
Bidder 17, $582; 16, *$583.60.
Class 10.—Cylinder lubricators:
Bidder 15, *$240.09; 17, $267.84; 12, $276.60.
Class 11.—Waste oil purifiers and refilters:
Bidder 17, *$283.65.
Class 12.—Piston-rod packing:
Bidder 16, *$291.50; 17, $322.70; 20, $323.60.
Class 13.—Hardware:
Bidder 15, *$1,089.82; 12, $1,270.38; 7, $1,312.42; 17, $1,531.84.
Class 14.—Twelve micrometers:
Bidder 12, *$45.60; 16, $66; 15, $71.40; 20, $71.76.
Class 15.—Electric supplies:
Bidder 19, *$195; 12, $198.
Class 16.—Brush jigs:
Bidder 19, *$64.60; 12, $67.32.
Class 17.—Two trolley hoists:
Bidder 17, *$119.80; 16, $124; 7, $125.40.
Class 18.—Files:
Bidder 7, *$51.76.

* Accepted.

Schedule of proposals for supplies for the Norfolk Navy-Yard, under Bureau advertisement dated April 2, 1897; opened April 20, 1897.

Bidder 1. Porter-McNeal Co., 277 Water street, Norfolk, Va.
2. Brooklyn Hardware and Sporting Goods Co., 601 Fulton street, Brooklyn, N. Y.
3. Duke & Smith, Norfolk, Va.
4. Midvale Steel Co., Nicetown, Philadelphia, Pa.
5. Bradford Lumber Co., 332 Main street, Norfolk, Va.
6. Colwell Lead Co., 63 Center street, New York City.
7. C. H. Bull, box 511, Norfolk, Va.
8. Mitchell & Reed, Washington, D. C.
9. Geo. L. Neville, Portsmouth, Va.
10. E. W. Franklin, Lynchburg, Va.
11. John Blake Kendall, Washington.
12. John Lucas & Co., 322 Race street, Philadelphia.
13. James Clendenin, 111 South Gay street, Baltimore, Md.
14. J. H. Sternbergh, Reading, Pa.
15. Manhattan Supply Co., 141 Chambers street, New York City.
16. The Benjamin Atha and Illingworth Co., Newark, N. J.
17. New Jersey Car Spring and Rubber Co., Jersey City, N. J.
18. Anderson Du Puy & Co., box 1315, Pittsburg, Pa.
19. Graton & Knight Manufacturing Co., Worcester, Mass. Informal; no guarantee.
20. Columbia Rubber Works Co., 66 Reade street, New York City.
21. Philip Walsh & Sons, Maryland avenue and Oliver street, Baltimore, Md.
22. Francis J. Dessoir, 56 Hudson street, New York City.
23. Francis Harral, 85 Chambers street, New York City.
24. E. V. White & Co., box 518, Norfolk.
25. Alonzo L. Thomsen, box 557, Baltimore. Informal; no guarantee.
26. John A. Hardenburgh, 109 Duane street, New York City.
27. Watson & Pittinger, 420 Carroll street, Brooklyn, N. Y.
28. P. Cavanagh, 358 Greenwich street, New York City.
29. H. A. Rogers, 19 John street, New York City.
30. Merchant & Co., 517 Arch street, Philadelphia.
31. S. C. Forsaith Machine Co., Manchester, N. H.
32. Chesebrough Manufacturing Co., 24 State street, New York City.
33. Jesse Lewisohn, P. O. box 1247, New York City
34. E. B. Thurber, Produce Exchange Building, New York City.
35. Ansonia Brass and Copper Co., 19 Cliff street, New York City.
36. M. Feigel, 149 Mercer street, New York City.
37. James Reilly Repair and Supply Co., 229 West street, New York City.
38. Park Bro. & Co., Limited, Box 755, Pittsburg.

Class 1.—Copper:
Bidder 13, * $2,239; 11, $2,257; 33, $2,358; 8, $2,390; 31, $2,436; 9, $2,500; 29, $2,500.

Class 2.—Zinc:
Bidder 11, * $800; 13, $839; 33, $896; 29, $970; 9, $1,000; 31, $1,020.

Class 3.—Pig tin:
Bidder 13, * $1,362; 33, $1,369; 30, $1,374; 6, $1,385; 11, $1,387.50; 8, $1,400; 31, $1,410; 15, $1,420; 29, $1,450; 9, $1,500.

Class 4.—Galvanized iron, brass, and lead:
Bidder 10, * $618.54; 37, $634.08; 30, $639.07; 9, $642.43; 6, $675.90; 15, $702.37; 37, $727.03.

Class 5.—Tobin bronze:
Bidder 35, * $889.10; 9, $1,046.

Class 6.—Solder:
Bidder 10, * $45; 30, $45.50; 37, $46; 9, $47.45; 8, $47.50; 6, $49.38; 29, $51.25; 15, $57; 34, $57.50; $24, $70.

Class 7.—Bolts:
Bidder 29, * $223.20; 11, $239.25; 9, $240.75; 15, $241.50; 14, $253.30; 1, $263.40; 10, $333.25.

Class 8.—Rivets, etc.:
Bidder 10, * $89.20; 37, $106.46; 9, $117.30; 23, $119.50; 29, $121.55; 15, $138.05.

Class 9.—Lamps, hack-saw blades:
Bidder 23, * $30.85; 37, $40.30; 34, $55.15; 9, $72.03; 29, $74.10; 15, $82.70; 1, $90.48; 24, $95.30.

Class 10.—Files, rasps:
Bidder, 11, * $164.08; 9, $177,60; 28, $188.46; 1, $207.45; 10, $225.47,

Class 11.—Tin:
Bidder 30, * $52.50; 37, $53.50; 34, 54.50; 15, $57; 9, $58.75.

Class 12.—Bar steel: †
Bidder 10, $1,044; 29, $1,091; 18, $1,099; 15, $1,161; 16, $1,192.50; 9, $1,221.25; 38, $1,257 and $1,621; 11, $1,519; 4, $2,052.50.

Class 13.—Brads, spikes, etc.:
Bidder 10, * $238.59; 23, $293.59; 8, $297.51; 29, $381.74; 37, $409.04; 15, $412.58.

Class 14.—Screws:
Bidder 9, * $321.60; 26, $321.68; 29, $327.28; 11, $339.64; 2, $348.91; 28, $373.44; 15, $397.05; 10, $418.50.

Class 15.—Acid:
Bidder 9, * $66.60; 36, $91; 15, $136.

Class 16.—Rotten stone:
Bidder 37, * $24.80; 9, $36; 1, $38; 29, $50; 15, $52.

Class 17.—500 lbs. vaseline:
Bidder 32, 8c. red, * 12c. yellow, 25c. white: 22, 25c.

Class 18.—Fire-clay cement:
Bidder 15, * $229; 9, $265; 34, $330.40.

Class 19.—Window glass:
Bidder 12, * $138.55; 10, $156.60; 9, $166.70.

Class 20.—Belt lacing:
Bidder 9, * $49; 1, $69.50; 24, $80.

Class 21.—White pine:
Bidder 27, ‡ $616; 7, $770; 21, $820; 3, $880; 22, $940; 9, $1,000; 5, $1,280.

Class 22.—Packing:
Bidder 29, * $150.50; 37, $152.75; 15, $160; 9, $164; 23, $166; 1, $180; 24, $220; 26, $220.

Class 23.—Flax canvas:
Bidder 34, * $1,117.50; 22, $1,165; 15, $1,202.50.

Class 24.—Soap:
Bidder 22, * $92.15; 9, $100; 15, $133.50.

Class 25.—Upper-deck hose:
Bidder 17, * $294.38; 37, $294.38; 20, $300; 9, $625.

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated April 3, 1897; opened April 20, 1897.

Bidder 1. James F. McGuire, 18 Madison street, New York City.
2. Thos. C. Raine, jr., 570 Atlantic avenue, Brooklyn, N. Y.
3. Bridgeport Brass Co., Bridgeport, Conn.
4. U. T. Hungerford, 29 Chambers street, New York City. Informal: no guaranty.
5. James Langmuir, 117 Fulton street, New York City.
6. Max Frank, 49 Spruce street, New York City.
Bidder 7. Graton & Knight Manufacturing Co., Worcester, Mass. Informal; no guaranty.
8. John Wanamaker, Broadway and One hundred and tenth street, New York City.
9. Chas. M. Childs & Co., 225 Pearl street, New York City.
10. Edward F. Keating, 12 Centre street, New York City.
11. David Duncan & Son, 1 Broadway, New York City.

* Accepted.

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated April 3, 1897; opened April 20, 1897—Continued.

Bidder 12. Ansonia Brass & Copper Co., 19 Cliff street, New York City.
13. Geo. L. Neville, Portsmouth, Va.
14. James Reilly Repair and Supply Co., 229 West street, New York City.
15. Davis Coal and Coke Co., 1 Broadway, New York City.
16. Peale, Peacock & Kerr, Incorporated, 411 Walnut street, Philadelphia.
17. Merchant & Co., Incorporated, 517 Arch street, Philadelphia.
18. Harris & Holmes, 229 South street, New York City.
19. Manhattan Supply Co., 141 Chambers street, New York City.
20. New Jersey Car Spring and Rubber Co., Jersey City, N. J.
21. Conshohocken Woolen Co., West Conshohocken, Pa.
22. F. Fohrenbach Co., 440 West Forty-sixth street, New York City.
23. H. A. Rogers, 19 John street, New York City.
24. C. A. Woolsey Paint and Color Co., box 96, Jersey City, N. J.
25. Fiske Bros. Refining Co., 59 Water street, New York City.
26. Wendell, Fay & Co., 56 Summer street, Boston.
27. New York Leather Belting Co., 8 Ferry street, New York City.
28. Patterson, Gottfried & Hunter, Limited, 146 Centre street, New York City.
29. Francis Harral, 85 Chambers street, New York City.
30. John Lucas & Co., 322 Race street, Philadelphia.
31. Interstate Coal and Coke Co., 805 Merchants' National Bank Building, Baltimore.
32. American Tube Works, 137 Milk street, Boston.
33. Sullivan, Vail & Co., 339 Broadway, New York City.
34. Brooklyn Hardware and Sporting Goods Co., 601 Fulton street, Brooklyn.
Bidder 35. Manhattan Brass Co., 338 East Twenty-eighth street, New York City.
36. National Leather Belting Co., 7 Ferry street, New York City.

Class 1.—750 tons bituminous coal:
Bidder 15, *$1,822.50; 16, $1,912.50; 31, $1,927.50; 11, $1,950.
Class 2.—15,000 yards cap cloth:
Bidder 33, *$1.2374; 21, $1.3375; 26, $1.3947; 8, $1.87.
Class 3.—50,000 pounds biscuit:
Bidder 18, *$.0451; 8, $.0487.
Class 4.—10,000 pounds pickles:
Bidder 1, *$0.04 8/10; 22, $0.04¼.
Class 5.—Brass:
Bidder 14, *$265.11; 23, $283.08; 12, $295.26; 13, $295.26; 17, $295.26; 28, $297.96; 35, $297.96; 19, $304.20.
Class 6.—Iron, steel:
Bidder 23, *$83.15; 19, $110.40; 28, $136.43.
Class 7.—Tobin bronze:
Bidder 12, *$3,385.50.
Class 8.—Brass pipe:
Bidder 10, *$480.14; 19, $501.40; 13, $505.60; 17, $506.04; 3, $516.23; 23, $527.64; 14, $527.79; 32, $527.79.
Class 9.—Cup hooks:
Bidder 34, †$3.20; 29, $4.75; 19, $9.50; 23, $9.75.
Class 10.—Twist drills:
Bidder 14, *$44.77; 29, $44.85; 19, $47.45; 34, $47.81; 28, $61.61.
Class 11.—Window glass:
Bidder 30, *$160.72; 2, $186.61.
Class 12.—Light rigging leather:
Bidder 36, *$46.20; 6, $48.30; 28, $55.30; 34, $56.
Class 13.—Leather belting:
Bidder 27, *$90; 34, $95; 6, $97.50.
Class 14.—Gum packing:
Bidder 14, *$140; 25, $217; 20, $273.
Class 15.—Tuck's packing:
Bidder 20, *$192.50; 14, $250.25.
Class 16.—Paints, etc.:
Bidder 5, *$587.50; 9, $603.50; 30, $626.25; 24, $636; 2, $784.

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated March 27, 1897; opened April 27, 1897.

Class 1.—150,000 pounds navy tobacco:	
Francis J. Dessoir, 56 Hudson street, New York City	$0.27½
Butler & Bosher, 2401 East Franklin street, Richmond, Va.:	
A 1	.35
B 2	.32
C 3	.28½
D 4	.27¾
Spicer Son & Co., 12 W. 19th street, Richmond, Va.*	.32
P. H. Mayo & Bro., 13 S. 7th street, Richmond, Va.	.33
S. W. Venable Tobacco Co., 128 Byrne street, Pittsburg, Pa.:	
A	.31
C	.34
Bendheim Bros. & Co., 152 Grand street, New York City, A, B, C	.31 1/10
John J. O'Rorke, 61 Hudson street, New York City:	
No. 1	.30
No. 2	.28½
No. 3	.29½
Class 1.—150,000 pounds navy tobacco—Continued.	
Frank W. McNeal, 80 Reade street, New York City, A	$0.30¼
Bland Bros. & Wright, P. O. box 604, Pittsburg, Pa.:	
Sample X	.29
Sample Y	.31
Sample Z	.34
C. J. Caughey, 128 Franklin street, New York City	.33
Chas. P. Buchanan, 101 Wall street, New York City	.28
P. Lorillard Co., Jersey City, N. J.:	
A	.28¼
B	.27¼

* Accepted. † No award.

Schedule of proposals for supplies for the Mare Island Navy-Yard, under Bureau advertisement dated March 25, 1897; opened April 27, 1897.

Bidder 1. David A. Tower, 301 Broadway, New York City.
2. Cunningham, Curtis & Welch, 327 Sansom street, San Francisco.
3. H. S. Crocker Co., 215 Bush street, San Francisco.
4. Manhattan Supply Co., 141 Chambers street, New York City.
5. Le Count Bros., 533 Market street, San Francisco.
6. Arthur Mountain & Co., 56 Cedar Street, New York City.
7. Payot, Upham & Co., San Francisco.
8. Walter Livingston Bilisoly, box 96, Norfolk, Va.

Class 1.—Note, letter, and foolscap paper:
Bidder 1, *$540.35; 6, $541.35; 7, $608.80; 2, $660.50.

Class 2.—Typewriter paper and carbon:
Bidder 1, *$288.71; 4, $291.44; 6, $297.35; 7, $339.40; 5, $379.50; 2, $406.86.

Class 3.—Blotting and wrapping paper:
Bidder 7, *$213.25; 5, $226; 8, $230.40; 2, $255.50; 3, $262.25; 6, $275.

Class 4.—Books:
Bidder 8, *$449; 6, $470.25; 4, $473.20; 7, $545.80; 5, $764.65; 2, $796.95.

Class 5.—Pens:
Bidder 1, *$138.80; 7, $146.08; 5, $149.98; 4, $151,86; 8, $152.40; 3, $154.80; 2, $156.78; 6, $167.80.

Class 6.—Pencils, erasers, and penholders:
Bidder 7, *$213.23; 1, $239.22; 3, $252.11; 2, $256.43; 8, $276.98; 6, $287.14; 5, $303.22.

Class 7.—Inks and mucilage:
Bidder 4, *$197; 7, $207.86; 2, $219.60; 3, $235.74; 5, $245.82.

Class 8.—Rubber bands:
Bidder 4, *$53.72; 1, $55.93; 2, $57.54.

Class 9.—Miscellaneous:
Bidder 1, *$417.41; 3, $450.96; 4, $458.60; 7, $488.31; 2, $667.85.

Schedule of proposals for driving sheet piling at the Washington Navy-Yard, under Bureau advertisement dated April, 17, 1897; opened May 4, 1897.

Thomas Banks, Washington, D. C.	$3,300.00
Louis H. Skinner, Washington	2,750.00
Isaac T. Brown, 39 Cortlandt street, New York City	2,681.25
Justin McCarthy, Norfolk, Va.	2,062.50
Houston Construction Co., Bullitt Building, Philadelphia	2,200.00
Wm. Chapman, box 735, Providence, R. I.	2,337.50
Rogers & Lemley, 3 East Lexington street, Baltimore	$1,478.12
Wilson & Haliday, Washington *	790.63
Sanford & Brooks, 21 South Gay street, Baltimore. Informal; no guarantee.	
Baldwin & Peake, Washington	3,300.00

Proposals for anchors for the United States Navy, under Bureau advertisement dated April 9, 1897; opened May 11, 1897.

Bidder 1. American Steel Casting Co., Thurston, Pa.

Class 1.—Six anchors delivered at Newport News:
Bidder 1, *$4,251.

Class 2.—Two anchors delivered at Philadelphia:
Bidder 1, *$1,417.

Class 3.—Two anchors delivered at San Francisco:
Bidder 1, *$1,677.

As no money is available for the purchase of this material no award will be made.

Schedule of proposals for supplies for the Norfolk Navy-Yard, under Bureau advertisement dated April 23, 1897; opened May 11, 1897.

Bidder 1. Park Bro. & Co., Limited, Pittsburg.
2. Francis Harral, 85 Chambers street, New York City.
3. Watson & Pittenger, 420 Carroll street, Brooklyn.
4. A. P. Swoyer & Co., 17 North Seventh street, Philadelphia.
5. S. C. Forsaith Machine Co., Manchester, N. H.
6. Wm. A. West, 919 Dinwiddie street, Portsmouth, Va.
7. F. H. Lovell & Co., 118 John street, New York City.
8. George L. Neville, Portsmouth, Va.
9. U. T. Hungerford, 29 Chambers street, New York City.
10. Patterson, Gottfried & Hunter, Limited, 146 Centre street, New York City.
11. C. H. Bull, P. O. box 434, Norfolk.
12. James Clendenin, 111 South Gay street, Baltimore.
13. Charles A. Moore, 111 Liberty street, New York City.
14. Manhattan Supply Co., 141 Chambers street, New York City.
15. James Reilly Repair and Supply Co., 229 West street, New York City.

Class 1.—Burrs and rivets:
Bidder 8, *$42.15; 10, $51.30; 15, $62.20; 14, $62.40.

Class 2.—Nails, tacks, etc.:
Bidder 10, *$339.08; 8, $339.93; 15, $342.01; 2, $349.29; 14, $355.49; 13, $377.05.

Class 3.—White-oak flitches:
Bidder 3, *$190.46; 11, $203.44; 8, $278.17.

Class 4.—White-pine boards:
Bidder 3, *$218.79; 8, $234.20.

Class 5.—Yellow-pine flitches:
Bidder 8, †$226.90.

Class 6.—White-ash boards:
Bidder 8, *$204.81.

Class 7.—Mahogany boards:
Bidder 3, *$181.28; 8, $206.

Class 8.—Cherry boards:
Bidder 3, *$85.80; 8, $107.25.

Class 9.—Cypress and juniper:
Bidder 11, *$1,005; 8, $1,050; 3, $1,095; 6, $1,162.50.

Class 10.—Hackmatack knees:
Bidder 3, *$111.25; 8, $120.

Class 11.—Bolt copper:
Bidder 12, $195.03; 9, $195.03; 1, $195.08; 4, $195.03; 8, *$205.03; 14, $207.55; 7, 208.54; 10, $212.10.

Class 12.—Oars:
Bidder 5, *$195.66; 14, $196.08; 8, $202.25; 10, $227.64; 13, $297.15.

* Accepted.

† No award.

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated April 22, 1897; opened May 11, 1897.

Bidder 1. Francis Harral, 85 Chambers street, New York City.
2. E. Hazard Aikman, 261 Pearl street, New York City.
3. Chas. A. Moore, 111 Liberty street, New York City.
4. Wm. E. Uptegrove, 465 East Tenth street, New York City.
5. James Reilly Repair and Supply Co., 229 West street, New York City.
6. Watson & Pittenger, 420 Carroll street, Brooklyn, N. Y.
7. Henry K. S. Williams, 221 Eleventh avenue, New York City.
8. Wm. Porter's Sons, 271 Pearl street, New York City.
9. Wm. Dauphin, jr., Woodward Steam Pump Works, 10 Reade street, New York City.
10. Geo. T. Montgomery, P. O. box 971, New York City.
11. James Langmuir, 117 Fulton street, New York City.
12. O'Neill Bros., Howard and Columbia avenues, Philadelphia.
13. John A. Hardenburgh, 109 Duane street, New York City.
14. John Lucas & Co., 322 Race street, Philadelphia.
15. Frank H. Woodruff, 257 Broadway, New York City.
16. C. A. Woolsey Paint and Color Co., Jersey City, N. J.
17. Smith, Kline & French Co., 435 Arch street, Philadelphia.
18. Joseph Cavanaugh, 358 Greenwich street, New York City.
19. Chas. E. Pell, 24 Tompkins street, New York City.
20. East Side Lumber Co., 506 East Houston street, New York City.
21. Wilkinson, Gaddis & Co., 866 Broad street, Jersey City, N. J.
22. Geo. L. Neville, Portsmouth, Va.
23. Patterson, Gottfried & Hunter, 146 Center street, New York City.
24. Chas. M. Childs & Co., 225 Pearl street, New York City.
25. Oliver H. Bixby, 157 West Sixth street, Boston, Mass.
26. Porter's Sons & Co., 194 Water street, New York City.
27. Francis J. Dessoir, 56 Hudson street, New York City.
28. Fiske Bros. Refining Co., 59 Water street, New York City.
29. Manhattan Supply Co., 141 Chambers street, New York City.
30. Alec H. Doty, 34 Rogers avenue, Brooklyn, N. Y.
31. F. H. Lovell & Co., 118 John street, Brooklyn, N. Y.
32. Frank W. McNeal, 80 Reade street, New York City.
33. Brooklyn Hardware and Sporting Goods Co., 601 Fulton street, Brooklyn, N. Y.
Bidder 34. John Wanamaker, Broadway and Tenth street, New York City.
35. W. D. Himmelreica & Co., Lewisburg, Pa., informal, no guaranty.

Class 1.—Hardware: †
Bidder 1, $463.23; 10, $492.48; 29, $510.08; 8, $590.36.
Class 2.—Files:
Bidder 23, *$11.46; 10, $13.90.
Class 3.—Hand lamps: †
Bidder 23, $950; 29, $1,036.50; 31, $1,042.50; 2, $1,560; 22, $2,100; 26, $2,394; 8, $3,000.
Class 4.—Lamp feeders, etc.:
Bidder 2, *$143.75; 3, $148.17; 23, $150.87; 1, $151.57; 29, $162.80; 22, $163; 26, $168.50.
Class 5.—20 dozen lanterns:
Bidder 8, *$760; 26, $780; 2, $900.
Class 6.—Screws:
Bidder 29, *$88.53; 22, $89.55; 33, $92.80; 13, $94.15; 23, $96.05.
Class 7.—Paint:
Bidder 24, *$340; 14, $350; 11, $352.50, 30, $365; 16, $422.50.
Class 8.—10,000 cakes of soap:
Bidder 21, $210, bid on sample; 18, *$244; 27, $245; 28, $267; 29, $263; 30, $288; 33, $328; 34, $356.
Class 9.—1,000 pounds castile soap:
Bidder 27, *$60; 29, $97; 34, $98.90; 33, $100; 17, $101.25; 28, $101.30; 9, $138.75.
Class 10.—Cotton waste:
Bidder 25, *$2,990; 28, $3,085; 30, $3,128.50; 32, $3,150; 5, $3,215; 12, $3,250; 27, $3,325; 29, $3,365; 34, $3,859.
Class 11.—White ash:
Bidder 7, *$1,019; 19, $1,040; 6, $1,053; 4, $1,152.
Class 12.—Cherry: †
Bidder 20, $2,420; 4, $2,520; 6, $2,730; 22, $3,000; 19, informal, part of class.
Class 13.—Mahogany:
Bidder 19, *$2,167.50; 4, $2,226; 7, $2,323.50; 6, $2,379; 22, $3,750.
Class 14.—White maple:
Bidder 19, *$148; 6, $152; 4, $169; 7, $179.20.
Class 15.—Hickory plank:
Bidder 19, *$251.25; 6, $345; 22, $600.
Class 16.—White oak:
Bidder 4, *$693; 6, $736; 19, $946.
Class 17.—White pine:
Bidder 6, *$2,500; 19, $2,520; 4, informal part of class.
Class 18.—Yellow poplar:
Bidder 6, *$630; 4, $700; 19, $704.80; 7, $788.
Class 19.—White spruce:
Bidder 18, *$445; 6, $480; 19, $490.
Class 20.—2,600 pounds rivets:
No bids.
Class 21.—22,000 pounds galvanized steel plates:
Bidder 3, *$627; 15, $726.
Class 22.—6,000 pounds steel angle bar:
Bidder 3, *$171; 15, $180.
Class 23.—864 pounds galvanized steel plates:
Bidder 3, *$24.62; 15, $43.20.

Schedule of proposals for supplies for Mare Island Navy-Yard under Bureau advertisement dated April 12, 1897; opened May 11, 1897.

Bidder 1. Standard Oil Co., Washington, D. C.
2. J. Barton Smith Co., Fourth and Summerset streets, Philadelphia.
3. E. J. Brooks & Co., incorporated, 51 Dey street, New York City.
4. J. B. Kendall, Washington.
5. Holbrook, Merrill & Stetson, Market and Beale streets, San Francisco.
6. Francis Harral, 85 Chambers street, New York City.
7. Dunham, Carrigan & Hayden Co., 17 Beale street, San Francisco.
8. The Columbia Rubber Works Co., 66 Reade street, New York City.
Bidder 9. Benj. F. Garratt, Fremont and Natoma streets, San Francisco.
10. Chas. F. Tay, 51 First street, San Francisco.
11. Chas. M. Yates, 109 Front street, San Francisco.
12. Chas. E. Miller, 22 Fremont street, San Francisco.
13. Frank H. Woodruff, 257 Broadway, New York City.
14. H. T. Lally, 25 First street, San Francisco.
15. Baker & Hamilton, 2 Pine street, San Francisco.

*Accepted. †No award.

Schedule of proposals for supplies for the New York Navy-Yard, under Bureau advertisement dated April 22, 1887; opened May 11, 1897—Continued.

Bidder 16. Geo. W. Gibbs Co., 33 Fremont street, San Francisco.
17. New Jersey Car Spring and Rubber Co., Jersey City, N. J.
18. Carnegie Steel Co., Limited, Pittsburg.
19. Geo. T. Hawley, 301 Market street, San Francisco.
20. Bowers Rubber Co., 42 Sacramento street, San Francisco.
21. Chas. M. Childs & Co., 225 Pearl street, New York City.
22. C. A. Woolsey Paint and Color Co., Jersey City, N. J.
23. Manhattan Supply Co., 141 Chambers street, New York City.
24. W. P. Fuller & Co., 21 Front street, San Francisco.

Class 1.—Squirt cans:
Bidder 15, *$55.80; 7, $66; 19, $70.80; 6, $73.20: 12, $79.68; 23, $94.80.
Class 2.—Oil fillers:
Bidder 7, *$68; 6, $69; 23, $74.50; 12, $114.
Class 3.—Rivets and burrs:
Bidder 19, *$63.30; 7, $67.85; 15, $69.10; 12, $70.45; 5, $72.07; 10, $75.05.
Class 4.—Padlocks:
Bidder 19, *$336.25; 7, $356.25; 15, $385; 23, $427.50; 6, $452.25; 12, $565.25.
Class 5.—Brass wire:
Bidder 5, *$37; 10, $38.12; 9, $40.00; 7, $43.10; 12, $47; 15, $47.50; 19, $72.50; 23, $87.
Class 6.—Zinc:
Bidder 5, *$78.85; 12, $87.82.
Class 7.†– Steel:
Bidder 18, $771.18; 16, $875.95; 12, $906.6 5,4; $945.88; 13, $997.88.
Class 8.—Hardware:
Bidder 7, *$686.62; 6, $760.50; 19, $802.85; 15, $851.70; 23, $928.45; 12, $1,016.56.
Class 9.—Tapelines and wrenches:
Bidder 3, *$532.35; 23, $538.90; 19, $545.27; 7, $553.09; 5, $554.75; 14, $560.76; 10, $563.80; 6. $581.45; 15, $587.10; 12, $607.10.
Class 10.—Files:
Bidder 4, *$574.50; 2, $576.59; 14, $594.57; 12, $604.88; 19, $684.30; 15, $687.14; 5, $697.85.
Class 11.—Plumbers' supplies:
Bidder 9, *$503.96; 10, $530.91; 5, $539.81; 14, $611.18; 7, $632.36.
Class 12.—Brushes:
Bidder 23, *$46.50; 6, $61.25; 12, $112.25.
Class 13.—Emery cloth:
Bidder 23, *$355.50; 3, $368.60; 6, $380; 7, $394.50; 19, $406.75; 12, $431.20; 15, $440; 11, $455.
Class 14.—1,000 bath brick:
Bidder 12, *$37.
Class 15.—Packing:
Bidder 23, *$534.20; 6, $537.50; 17, $614.50; 7, $661.75; 12, $670; 19, $729.25.
Class 16.—Gum packing:
Bidder 20, *$440; 8, $470; 17, $780.
Class 17.—Gum packing:
Bidder 20, *$513; 17, $526.50.
Class 18.—Tuck's packing:
Bidder 8, *$108.50; 17, $118.58; 20, $122.50; 7 $140.
Class 19.—Painters' materials:
Bidder 24, *$527.25; 11, $578; 21, $625.50; 22, informal, part of bid.
Class 20.—1,000 gallons cylinder oil:
Bidder 24, *$198; 11, $245; 1, $249.30.
Class 21.—10 dozen rubber mats:
Bidder 20, *$336; 17, $394.

Schedule of proposals for supplies for the United States naval hospitals, under Bureau advertisement dated April 10, 1897; opened May 11, 1897.

PHILADELPHIA, PA.

Bidder 1. The Commercial Ice Co., 1418 South Penn street, Philadelphia; informal; no guarantees.
2. James F. Oyster, Washington.
3. Robert McKeown, 629 South Twenty-third street, Philadelphia.
4. Wm. Deering, 2119 South street, Philadelphia.
5. Michael Dougherty, Twenty-second and Carpenter streets, Philadelphia.
6. G. Freund Market, Twenty-third and South streets, Phildelphia.
7. Thos. Martindale, Tenth and Market streets, Philadelphia.
8. Wm. F. Corbit, 737 Reading Terminal, Philadelphia.
9. Knickerbocker Ice Co., Philadelphia.
10. Charles & Wm. Freidhofer, Twenty-fourth and Tasker streets, Philadelphia.
11. Delaware Ice Co., Philadelphia.
12. John T. Strickland, 303 North Sixty-fifth street, Philadelphia.
13. Wm. A. Belford, 197 Joralemon street, Brooklyn.
14. John B. Daish, Washington.

Class 1.—Meat:
Bidder 12, *$3,495.60; 4, $3,632.80; 13, $3,831.55.
Class 2.—Groceries:
Bidder 3, *$1,548.95; 4, $1,628.50; 13, $1,789.35; 7, $1,732.40.
Class 3.—Butter:
Bidder 2, *$1,150; 3, $1,160; 4, $1,190; 13, $1,235.
Class 4.—Ice:
Bidder 9, *$500; 11, $500; 13, $1,200.
Class 5.—Milk:
Bidder 5, *$790.
Class 6.—Bread:
Bidder 13, *$524.40; 10, $540.
Class 7.—Groceries:
Bidder 3, *$371.35; 6, $397.95; 8, $398.65.
Class 8.—Forage:
Bidder 13, *$95.90; 14, $98.50.

NORFOLK, VA.

Bidder 1. H. O. Phillips & N. E. Woodward, 1 and 3, City Market, Portsmouth, Va.
2. J. T. Parker & Bro., 624 Crawford street, Portsmouth, Va.
3. W. H. Belford, 197 Joralemon street, Brooklyn.
4. Robert F. Rose, Portsmouth, Va.
5. James F. Oyster, Washington.
6. D. J. Baum & Aaron Marx, 139 Main street, Norfolk.
7. V. J. Naw, 232 High street, Portsmouth, Va.
8. John B. Daish, Washington.
9. Thos. J. Barlow, 810 Crawford street, Portsmouth, Va.
10. C. R. Robertson & Co., Portsmouth, Va.
11 Louis Wasserman, 19 City Market, Portsmouth, Va.
12. J. S. Miller, 29 Court street, Portsmouth, Va.
13. John A. Codd, Portsmouth, Va.
14. Lindsay & Co., Crawford and California streets, Portsmouth, Va.
15. Owen L. Williams, Portsmouth, Va.

Class 1.—Meat:
Bidder 6, *$3,178.10; 13, $3,468; 11, $3,615.10; 1, $3,819; 3, $4,315.
Class 2.—Groceries:
Bidder 15, $1,912.65: 2, $1,930.05; 9, $1,970.15; 3, *$1,882.90.
Class 3.—Butter:
Bidder 5, *$1,102; 15, $1,166; 2, $1,232; 9, $1,335; 3, $1,397.
Class 4.—Ice:
Bidder 12, *$348.25; 10, $385; 15, $612.50.
Class 5.—Milk:
Bidder 11, *$1,160: 4, $1,200: 13, $1,498; 15, $1,800.
Class 6.—Bread:
Bidder 15, $775; 3, $1,400; 7, *$600.
Class 7.—Vegetables:
Bidder 9, *$323.40; 2, $371.82; 7, $600.
Class 8.—Forage:
Bidder 15, *$250.90; 9, $260.25; 2, $268.10; 14, $271.35; 8, $285; 3, $314.15.

* Accepted.

Schedule of proposals for supplies for the United States naval hospitals, under Bureau advertisement dated April 10, 1897; opened May 11, 1897—Continued.

MARE ISLAND, CAL.

Bidder 1. Pacific Marine Supply Co., 215 California street, San Francisco.
2. Henry Connelly, Vallejo, Cal.
3. James Brownlie, Vallejo, Cal.
4. Frank B. Norton, 131 California street, San Francisco.
5. Beneditto Pessalacqua, Vallejo, Cal.
6. O. C. Smith, box 211, Vallejo, Cal.
7. Sam'l Brown, Vallejo, Cal.
8. Corcoran & Collins, Vallejo, Cal.
9. M. L. Kelly, 137 Valencia street, San Francisco.
10. Joseph Boss, P. O. box 225, Vallejo, Cal.
11. Robert Gore, box 192, Vallejo, Cal.
12. Hammond & Brod, 727 727 Market street, San Francisco.
13. Miller & Wittman, 219 Georgia street, Vallejo, Cal.
14. John Megarry, 310 Georgia street, Vallejo, Cal.
15. James Megarry, box 227, Vallejo, Cal.

Class 1.—Meat:
Bidder 12, *$2,359.70; 14, $2,526.20; 7, $2,705.10.
Class 2.—Groceries:
Bidder 15, $1,882.90; 8, $2,017; 3, $2,043.15; 1, $2,100.21; 13, 2,285,60; 9, *$1,848.60.
Class 3.—Butter:
Bidder 15, *$991; 3, $1,000.50; 8, $1,014; 4, $1,266.50.
Class 4.—Ice:
Bidder 2, *$399; 6, $406.
Class 5.—Milk:
Bidder 15, *$140; 3, $175; 8, $175.
Class 6.—Bread:
Bidder 10, *$412.50.
Class 7.—Vegetables:
Bidder 13, *$506; 8, $529.70; 5, $553.65.
Class 8.—Forage for hospital:
Bidder 11, *$777.50; 8, $996.50; 3, $1,232.50.
Class 9.—Forage for storehouse:
Bidder 11, *$134.05; 8, $170.25; 3, $213.

PORTSMOUTH, N. H.

Bidder 1.—C. M. Prince, Kittery, Me.
2. Lutts Bros., Kittery, Me.
3. Augustus Stephenson, Kittery, Me.
4. Geo. Francis Hayes, Kittery, Me.
5. H. M. Walker, Kittery, Me.
6. A. W. Moulton, Kittery, Me.
7. W. H. Belford, 197 Joralemon street, Brooklyn.
8. H. R. Hall, Kittery, Me.
9. John B. Daish, Washington.

Class 1.—Meat:
Bidder 8, *$831.40; 1, $846.90.
Class 2.—Groceries:
Bidder 1, $954.04; 8, *$951.02.
Class 3.—Butter:
Bidder 6, *$372.50; 3, $398; 1, $430.50; 8, $445; 7, $465.50.
Class 5.—Milk:
Bidder 6, *$180; 5, $202.50; 3, $210; 4, $345; 8, $360.
Class 6.—Bread:
Bidder 2, *$195.
Class 7.—Groceries:
Bidder 6, *$91.94; 3, $121; 8, $170.10.
Class 8.—Forage:
Bidder 9, *$65.92: 8, $72.75; 3, $87.

NEW YORK, N. Y.

Bidder 1. E. J. Morrison, 69 Columbia street, Brooklyn, N. Y.
2. Chas. L. Rickerson, 54 Harrison street, New York City.
3. Wm. A. Wright, 197 Johnson street, Brooklyn.
4. Frederick Koch, 462 Myrtle avenue, Brooklyn.

NEW YORK, N. Y.—continued.

Bidder 5. Brooklyn Hygienic Ice Co., Brooklyn.
6. John J. O'Rorke, 61 Hudson street, New York City.
7. John F. Meehan, 434 Atlantic avenue, Brooklyn.
8. Anton Behlan, 792 Myrtle avenue, Brooklyn.
9. W. H. Belford, 197 Joralemon street, Brooklyn.
10. Wm. H. Cloonen, 137 Atlantic avenue, Brooklyn.
11. C. Fitter & Son, 11 Wallabout Market, Brooklyn.
12. John B. Daish, Washington.

Class 1.—Meat:
Bidder 1, *$2,878.30; 9, $3,242.20; 10, $3,352.40.
Class 2.—Groceries:
Bidder 6, *$1,628.31: 4, $1,738.90; 9, $2,235.96.
Class 3.—Butter:
Bidder 3, *$1,240.50; 9, $1,325; 6, $1,365; 4, $1,432; 11, $1,533.
Class 4.—Ice:
Bidder 5, *360; 4, $480; 10, $480: 9, $528.
Class 5.—Milk:
Bidder 10, *$898; 3, $1,400; 9, $1,500.
Class 6.—Bread:
Bidder 4, *$600; 8, $680; 9, $820.
Class 7.—Vegetables:
Bidder 1, *$438.30; 10, $490.55; 4, $539.
Class 8.—Forage:
Bidder 2, *$466.20; 9, $508.70; 7, $586; 12, $540.60; 4, $571.25.

PENSACOLA, FLA.

Bidder 1. F. Bauer, Warrington, Fla.
2. Benjamin Dolphin, Warrington, Fla.
3. John B. Daish, Washington.

Class 1.—Meat:
Bidder 2, *$72.48; 1, $105.35.
Class 2.—Groceries:
Bidder 2, *$266.71; 1, $305.67.
Class 3.—Butter:
Bidder 1, *$51.50; 2, $58.40.
Class 4.—Ice:
Bidder 1, *$31.50; 2, $37.50.
Class 5.—Milk:
Bidder 2, *$30.
Class 6.—Bread:
Bidder 1, *$25; 2, $25.
Class 7.—Vegetables:
Bidder 2, *$63.15.
Class 8.—Forage:
Bidder 2, *$95.50; 1, $108.35; 3, $117.89.

NEWPORT, R. I.

Bidder 1. John T. Reagan, 480 Thames street, Newport, R. I.
2. Philip Stevens, Newport, R. I.
3. W. H. Belford, 197 Joralemon street, Brooklyn, N. Y.
4. Kaull & Anthony, 391 Thames street, Newport, R. I.

Class 1.—Meat;
Bidder 4, *$1,404; 2, $1,469.30; 1, $1,493.30; 3, $1,624.
Class 2.—Groceries:
Bidder 1, *$833.05; 4, $984; 3, $1,195.84; 2, $1,493.93.
Class 3.—Butter, cheese, etc.:
Bidder 4, *$485; 1, $500; 3, $555; 2, $560.
Class 4.—Ice:
Bidder 4, *$150; 2, $420; 1, $450; 3, $1,050.
Class 5.—Milk:
Bidder 4, *$480; 2, $520; 1, $560; 3, 640.
Class 6.—Bread:
Bidder 4, *$360; 1, $400; 2, $400; 3, $440.
Class 7.—Vegetables:
Bidder 4, *$519; 2, $612; 1, $732.50.

---

* Accepted.

Schedule of proposals for supplies for the United States naval hospitals, under Bureau advertisement dated April 10, 1897; opened May 11, 1897—Continued.

CHELSEA, MASS.

Bidder 1. J. H. & W. S. Brown, Charlestown, Mass.
2. J. E. Lewis & Co., 5 Broadway, Chelsea, Mass.
3. Geo. A. Sanderson, 42 Decatur street, Boston.
4. Alfred E. Jones, 497 Washington avenue, Chelsea, Mass.
5. Charles A. Simonds, 82 Chelsea street, Charlestown, Mass.
6. W. H. Belford, 197 Joralemon street, Brooklyn, N. Y.
7. John B. Daish, Washington.

Class 1.—Meat:
Bidder 5, * $1,155.55; 6, $1,440.60.

Class 2.—Groceries:
Bidder 5, * $793.20; 6, $953.51.

Class 3.—Butter, cheese, etc.:
Bidder 5, * $490 6, $505.

Class 4.—Ice: †
Bidder 6, $840; 5, $1,200.

Class 5.—Milk:
Bidder 5, * $225; 4, $243.75.

Class 6.—Bread:
Bidder 5, * $256; 1, $260; 3, $290; 6, $360.

Class 7.—Vegetables:
Bidder 5, * $268.45; 6, $410.70.

Class 8.—Forage:
Bidder 2, * $389; 5, $421.15; 7, $427.45; 6, $441.75.

WASHINGTON, D. C.

Bidder 1. John B. Daish, Washington.
2. John G. Meinburg, Washington.
3. James F. Oyster, Washington.
4. Hygienic Ice Co., Washington.
5. F. P. Seibert, Washington.
6. Ira W. Paine, Washington.
7. J. C. Ergood & Co., Washington.
8. Havenner Baking Co., Washington.
9. W. M. Galt & Co., Washington.
10. Browning & Middleton, Washington.
11. Charles W. Bland, Washington.
12. Charles Schneider Baking Co., Washington.
13. George A. Myers, Washington.
14. W. H. Belford, 197 Joralemon street, Brooklyn, N. Y.

Class 1. Meat:
Bidder 6, * $1,188; 5, $1,337.50; 14, $1,533.20.

Class 2. Groceries:
Bidder 7, * $859.43; 6, $861.07; 10, $866.57; 14, $1,154.52.

Class 3. Butter and cheese:
Bidder 3, * $517; 6, $565; 10, $593; 14, $638.

Class 4. Ice:
Bidder 4, * $156; 14, $360.

Class 5. Milk:
Bidder 6, * $157.50; 11, $157.50.

Class 6. Bread:
Bidder 8, * $175; 2, $200; 6, $200; 12, $200; 14, $350.

Class 7. Vegetables:
Bidder 6, * $214:

Class 8. Forage for hospital:
Bidder 1, * $88.60; 9, $90.37, 13, $92.66; 14, $130.50.

Class 9. Forage for dispensary:
Bidder 1, * $243.70; 9, $246.42; 13, $254.88; 14, $337.65.

Schedule of proposals for flannel for the New York Navy-Yard under Bureau advertisement dated April 1, 1897; opened May 18, 1897.

John Wanamaker, Philadelphia, No. 1, $76\frac{84}{100}$ cents, $84\frac{75}{100}$ cents, $95\frac{38}{100}$ cents, $1.21.
Wendell, Fay & Co., Boston, * 95 cents.
Sullivan, Vail & Co., 329 Broadway, New York City, $88\frac{48}{100}$ cents.

Schedule of proposals for supplies for the New York Navy-Yard under Bureau advertisement dated April 29, 1897; opened May 18, 1897.

Bidder 1. Frank W. McNeal, 80 Reade street, New York City.
2. S. C. Forsaith Machine Co., Manchester, N. H.
3. Frank H. Woodruff, post-office box 109, New York City.
4. Carbon Steel Co., Thirty-second and Smallman streets, Pittsburg.
5. Henry B. Dougherty, 331 North Second street, Philadelphia.
6. Benj. Atha & Illingworth Co., Newark, N. J.
7. A. P. Swoyer, 17 North Seventh street, Philadelphia.
8. Wm. S. Gray, 106 Maiden Lane, New York City.
9. U. T. Hungerford, 29 Chambers street, New York City.
10. Ericsson & Hall, 35 Warren street, New York City.
11. D. A. Lowber, 45 Dey street, New York City.
12. Henry A. Rogers, 19 John street, New York City.
13. N. G. Taylor Co., Philadelphia.
14. Bethlehem Iron Co., South Bethlehem, Pa.
15. Morris Tasker & Co., 2224 South Third street, Philadelphia.
16. Western Electric Co., Thames and Greenwich streets, New York City.
17. Merchant & Co., 517 Arch street, Philadelphia.
18. B. Y. Pippey & Co., 45 Leonard street, New York City.
19. James A. McDonald, 67 Beekman street, New York City.
20. John Wanamaker, Tenth and Broadway, New York City.
21. Thos. G. Hood, 1100 Market street, Philadelphia.
22. John A. Hardenburgh, 109 Duane street, New York City.
23. E. J. Brooks & Co., Incorporated, 51 Dey street, New York City.
24. Pancoast & Rogers, 28 Platt street, New York City.
25. Midvale Steel Co., Philadelphia.
26. Ansonia Brass and Copper Co., 19 Cliff street, New York City.
27. Manhattan Brass Co., 338 East Twenty-eighth street, New York City.
28. J. B. Kendall, Washington.
29. Edward A. Temple, 12 Platt street, New York City.
30. Ronalds & Co., 54 Cliff street, New York City; informal, no guaranty.
31. Thompson Bros., Milroy, Pa.
32. Allison Manufacturing Co., Thirty-third and Walnut streets, Philadelphia.
33. Patterson, Gottfried & Hunter, 146 Center street, New York City.
34. Colwell Lead Co., 63 Center street, New York City.
35. Henry S. Manning, 111 Liberty street, New York City.
36. Thos. M. Farley, Hoyt and Third streets, Brooklyn.
37. Smith, Kline & French Co., 435 Arch street, Philadelphia.
38. Austin P. Brown, Washington.
39. J. H. Sternbergh, Reading, Pa.
40. Frank H. Lovell, 118 John street, New York City.

* Accepted. † No award.

Schedule of proposals for supplies for the New York Navy-Yard under Bureau advertisement dated April 29, 1897; opened May 18, 1897.

Bidder 41. R. P. Rowe, 82 Hancock street, Brooklyn.
42 American Tube Works, 137 Milk street, Boston.
43. Frank A. Hall, 221 Canal street, New York City.
44. Lewis A. Jones, P. O. Box 460, Detroit, Mich.
45. Park Bro. & Co., Limited, box 755, Pittsburg, Pa.
46. James Clendenin, 111 South Gay street, Baltimore.
47. E. F. Keating, 82 Center street, New York City.
48. Geo. L. Neville, Portsmouth, Va.
49. Manhattan Supply Co., 141 Chambers street, New York City.

Class 1.—Iron bolts and nuts:
Bidder 11, *$309.43; 49, $331.96; 12, $345.31; 39, $542.64.

Class 2.—Mild steel rivets:
Bidder 39, *$171.49; 10, $187.08.

Class 3.—Four steel corrugated furnaces: †
Bidder 3, $1,992.

Class 4.—Mild steel plates:
Bidder 4, *$1,289.90; 48, $1,311.40.

Class 5.—Mild steel for braces:
Bidder 1, *$176.98; 45, $194.37; 3, $204.60; 25, $358.05.

Class 6.—Steel bars:
No bids.

Class 7.—Boiler tubes:
Bidder 24, *$992.65; 15, $1,044.40; 32, $1,150.75.

Class 8.—12,000 pairs woolen socks:
Bidder 31, *19¼ cents; 20, 19.89 cents; 21, 20 cents; 18, 20.7 cents.

Class 9.—50,000 yards bleached cotton drill:
Bidder 21, *7.84 cents; 20, 9.79 cents; 22, 9.85 cents.

Class 10.—50,000 yards unbleached cotton drill:
Bidder 20, *7.94 cents; 22, 7.95 cents; 49, 8.73 cents; 21, 8.87 cents.

Class 11.—1,500 mattresses:
Bidder 36, *$3,927; 5, $4,196.10; 19, $4,215; 20, $4,395; 43, $4,470.

Class 12.—20,000 pounds ingot copper:
Bidder 28, *$2,220; 46, $2,220; 3, $2,490.

Class 13.—6,000 pounds slab zinc:
Bidder 46, *$256.50; 28, $270; 49, $324; 2, $324; 35, $456.

Class 14.—25 tons charcoal pig iron:
Bidder 2, *$411.75; 35, $456; 3, $485; 28, $500; 49, $510.

Class 15.—Galvanized iron:
Bidder 17, *$1,165.59; 33, $1,218.78; 49, $1,230.24; 3, $1,243.85; 29, $1,249.68; 48, $1,315.16; 1, $2,219.15.

Class 16.—Galvanized hoop iron:
Bidder 29, *$92.34; 33, $94.63; 49, $136.28.

Class 17.—10 boxes sheet tin:
Bidder 29, *$60.50; 13, $62.50; 17, $62.50; 23, $68.90; 33, $71; 12, $72.50.

Class 18.—Hoop brass:
Bidder 33, *$394.74; 12, $402.28; 35, $404.69; 7, $405.06; 9, $405.06; 10, $405.06; 17, $405.06; 26, $405.06; 27, $405.06; 40, $405.06; 44, $405.06; 46, $405.06; 48, $405.06; 49, $405.06; 29, $449.78.

Class 19.—Sheet lead:
Bidder 41, *$288.05; 34, $288.05; 19, $296.09; 35, $306.90; 48, $313.87; 47, $348.75; 3, $348.75; 29, $382.23; 49, $434.56.

Class 20.—Tobin bronze:
Bidder 26, *$68.17; 33, $72.18.

Class 21.—Rivet steel:
Bidder 6, *$587.97; 45, $672.92; 3, $695.23; 12, $879.52; 25, $1,351.84.

Class 22.—Steel billets:
Bidder 6, *$356.80; 3, $430.61; 45, $462.40; 12, $465.29; 14, $578; 28, $650.25; 38, $1,008.61; 25, $1,011.50.

Class 23.—Bar iron:
Bidder 24, *$1,666.07; 1, $1,815.49; 3, $2,246.60; 28, $2,369.50.

Class 24.—Hardware:
Bidder 33, *$78.76; 49, $90.62; 12. $99.48.

Class 25.—Seamless drawn brass tubing:
Bidder 49, *$316.36; 48, $319.48; 12, $321.45; 9, $321.56; 17, $321.56; 46, $324.19; 7, $328.09; 47, $332.36; 42, $333.02; 11, $357.17; 29, $387.14.

Class 26.—Stubs steel;
Bidder 23, *$40.47; 29, $42.12; 35, $73.20; 12, $75.36; 49, $90.25.

Class 27.—Brass rod:
Bidder 33, $133.20; 46, *$126.54; 35, $132.75; 12, $132.90; 7, $133.20; 9, $133.20; 10, $133.20; 11, $133.20; 17, $133.20; 26, $133.20; 27, $133.20; 4, $133.20; 44, $133.20; 48, $133.20; 49, $133.20.

Class 28.—Phosphor bronze:
Bidder 46, *$42.70; 35, $42.90; 29, $43.18; 33, 43.26; 12, $43.75; 49, $47.70.

Class 29.—Strip solder:
Bidder 16, *$100; 35, $106.20; 49, $114.

Class 30.—Insulating tape:
Bidder 22, *$671.50; 16, $672.75; 30, $674.25; 1, $691.38.

Class 31.—100 gallons wood alcohol:
Bidder 8, *$86.50; 37, $87.

Class 32.—Chemicals:
No bids.

Class 33.—Electrical supplies:
No bids.

Class 34.—Incandescent lamps:
Bidder 49, *$55; 16, $65.

* Accepted.

† No award.

REPORT

OF

THE SURGEON-GENERAL,

UNITED STATES NAVY.

NAVY DEPARTMENT,
BUREAU OF MEDICINE AND SURGERY,
Washington, D. C., October 1, 1897.

SIR: In obedience to instructions contained in Department's letter of July 6, 1897, I have the honor to report the operations of this Bureau for the last fiscal year, accompanied by a set of annual estimates for the fiscal year ending June 30, 1899, and statistical report showing the health of the Navy for the year 1896. The report embraces a statement of the condition of the naval hospital fund, the naval medical establishment, and other matters of interest pertaining to the duties of the Bureau of Medicine and Surgery.

NAVAL HOSPITAL FUND.

The condition of this fund is as follows:

Balance on hand July 1, 1896	$314,829.33
Transferred to the credit since July 1, 1896	103,950.22
Credit by appropriation for fiscal year 1897	20,000.00
	438,779.55
Expended since July 1, 1896	206,297.35
Balance on hand June 30, 1897	232,482.20

APPROPRIATIONS.

The regular estimates for the fiscal year 1899 are diminished by $600

Estimates have been submitted for one ambulance for use at the naval hospital at Pensacola, Fla., where it is urgently needed.

An estimate of $1,000 for the cemetery of the United States naval hospital at Norfolk, Va., is submitted, the medical officer in charge of the above hospital having urgently represented the necessity for placing this cemetery in good condition.

An additional estimate is submitted for $15,000 to increase the capacity of the United States naval hospital, Washington, D. C., to meet the increasing wants of the station, as under existing conditions, and with the number of officers and men entitled to treatment steadily increasing, the present accommodations are inadequate. The administrative part of the building should be assigned to an annex provided for by estimate, leaving the entire hospital building to be used for its legitimate purpose.

NAVAL HOSPITALS.

Naval hospital, Widows Island, Me.—It is earnestly recommended that Congressional action be obtained for the disposal of this property, a bill to that effect having been prepared by the Bureau and submitted to the Department for its approval and transmission to Congress. In the meantime, minor repairs have been made to the building when deemed necessary.

Naval hospital, Portsmouth, N. H.—During the year repairs have been made to the steam and other pipes of the hospital building and boiler house and an improved duplex steam pump has been placed in engine room for use in case of fire and for supplying the water tank. "Welsbach" burners have been supplied throughout the hospital where needed, and minor repairs have been made to bath tubs and sinks. A room has been specially prepared and fitted up as a bacteriological laboratory, and a disinfecting plant of approved pattern has been introduced.

The hospital has been equipped during the year with a carefully prepared operating room, furnished throughout with the most approved modern furniture and appliances.

Naval hospital, Chelsea, Mass.—Blue prints have been made during the year showing the location of drains, sewers, water and gas pipes, and electric and steam connections. Minor repairs have been made to plank walks, fences, doors, windows and greenhouse, and the tin roof on ell of pesthouse has been painted.

Important improvements have been made in the establishment of a bacteriological, chemical, and microscopical laboratory for chemical work and in the preparation of an aseptic operating room which has been furnished with the most modern appliances and conveniences.

Naval hospital, Brooklyn, N.Y.—Since the new contracts were awarded and the bid for the new pavilion was accepted, the extensive repairs and new construction at this hospital have progressed rapidly and will soon be completed. In a previous report the extent and nature of the changes proposed were stated. The successful termination of the work will secure for the Navy every comfort and advantage in the treatment of the sick at this important station, and by increased accommodations meet the growing demands of the service.

The renovation of the main building has been very thorough; the new three-story brick building in the court contains general mess hall, dispensary and chapel, and operating room; a new electric elevator has been located between the main building and the courtyard building. The new pavilion, situated south of the main building, with which it will be connected by closed corridors, is nearing completion. The operating room on the top floor of the courtyard building will be thoroughly appointed and completely supplied. Every condition of hygiene has been considered and every means adopted to facilitate the employment of modern methods of surgical practice.

A new laundry sterilizer has been recently installed, and has met successfully the severe bacteriological tests applied.

The annex building for contagious diseases has been used in a number of cases during the year. In disinfecting this building, experiments have been made with the vapor of formaldehyde, but the bacteriological tests have not shown complete destruction of life in microganisms. Possibly this was due to nonobservance of details, though the process was carried out by those interested in the success of the thod. As positive and satisfactory results obtained by others seem to justify every confidence in its use, further experimentation with the vapor will be made.

Minor repairs to grounds and outbuildings have been made during the year, and the efficiency of the steam-heating plant has been augmented by the addition of a new boiler and the installation of a powerful duplex pump. Additional radiators have also been distributed.

Naval hospital, Philadelphia, Pa.—In this hospital a large and well-lighted room has been prepared and equipped during the year as a bacteriological and chemical laboratory for clinical work. This improvement will add materially to the precision and accuracy of the work of the hospital.

Many repairs were made to the steam pipes and heaters, and the boilers and two pumps were overhauled. Three steam traps were also put in place, and have caused considerable economy in the amount of steam required.

Rubber matting has been laid in four wards and in the halls on the first floor, and the floor in the basement of both wings has been covered with cement.

By the establishment of a fixed standard of the highest grade for every article furnished, the supplies of this and the other hospitals have been materially improved.

The ambulance recently supplied has been of good service during the year, and the use of the portable bath tub has added much to convenience and effectiveness in the treatment of cases of fever.

Five cases of mumps and one of measles were treated, emphasizing the need of a separate building for contagious diseases.

The water supplied by the municipality is of poor quality, and the existing apparatus for purification has not been satisfactory. The Bureau intends to have a system of suitable filters installed in the near future that will meet the requirements of the hospital in this respect.

Naval hospital, Washington, D. C.—The ambulance allowed this hospital under appropriation approved June 10, 1896, has been employed frequently in the transportation of sick and wounded from the navy-yard. It is complete and modern, comfortably upholstered, and provided with stretcher, emergency case, and necessary supplies.

The chief improvement in the hospital during the year has been the completion of the operating room, which has been furnished with the most improved apparatus and surgical appliances. The room is conveniently located, with a good supply of natural and artificial light.

A disinfecting plant of modern design has been installed in the hospital, and adds much to the efficiency of the establishment.

Naval hospital, Norfolk, Va.—Many minor repairs have been made during the year, and considerable work has been done on the fences and grounds.

The river fence has been renewed and a considerable portion of the river wall has been rebuilt. New steam piping has been put in, to connect the heating system of the north and south wings of the hospital, and additional connections have been made between the driven wells.

The following repairs have also been made to the main building, viz: Repairing all gutters and down spouts, painting the veranda floors with two coats, and all the roofs, gutters, and down spouts with one coat. To improve the ventilation and light of the garret of the main building, six skylights on each wing, or eighteen in all, were placed in the roof and the work completed.

Naval hospital, Pensacola, Fla.—The work on this hospital, mentioned in the report of the previous year, has been completed. The roof of the hospital wards and dispensary has been reshingled and the guttering and leaders on main and veranda roofs have been thoroughly repaired.

Doors, blinds, sash, sills, joists, and flooring have been repaired or renewed as required, and all exterior woodwork has been repainted. Necessary repairs have also been made to the officers' wards and quarters and to kitchen, ice house, water-closets, and gates. This work has been done to prevent deterioration of building, and to have the hospital ready for immediate occupation in emergency, and was performed in a most satisfactory manner under the supervision and direction of the Bureau of Yards and Docks.

Naval hospital, Mare Island, Cal.—A thoroughly equipped and well-located operating room has been established in this hospital during the year, and a laboratory for bacteriological and chemical investigation will be in use at an early date.

Many minor repairs have been made to roofs, engine room, boilers, and fences, and extensive work has been done on the roads. Many improvements have been made in the furniture of the hospital, and additional ward chairs and rugs have been purchased.

The appropriation for the improvement of the cemetery has been well expended, the work under the contract having been satisfactorily completed in less than three months. The approaches were improved, iron gates substituted for the old wooden ones, the inclosing fence repaired, the avenue broadened and graveled, the terrace walls repaired, the whole area graded, and the graves properly aligned. Headstones, 275 in number, corresponding in character to those in the national cemeteries, were placed in position, each supported on a base of artificial stone. An additional appropriation would be required to supply new supporting bases to certain heavy monuments which have sunk out of line, to plant desirable shrubbery, and to complete the road from the north gate.

Naval hospital, Yokohama, Japan.—The walls of the lower ward of this hospital have been replastered during the year and all the interior woodwork repainted. The bathroom has been renovated, and on the hospital building minor repairs have been made.

IMPROVEMENTS AND REPAIRS AT NAVAL HOSPITALS.

Naval hospital, Brooklyn, N. Y.—The Department, under date of July 21, 1896, having declared forfeited the contract of J. M. Brosnan for this work, permission was received, and advertisements issued August 20, 1896, for proposals for improvements and repairs at the naval hospital, New York, in accordance with plans and specifications approved by the Department.

Five bids were received (and opened September 21, 1896) to complete the work of improvements and repairs at the United States naval hospital, Brooklyn, N. Y., as follows:

Thomas Dwyer, 106 East One hundred and sixteenth street, New York	$47,000
D. S. Hess & Co., 876 Broadway, New York	38,900
Arthur H. Weeks, 2150 Fulton street, Brooklyn, N. Y	32,000
M. Gibbons & Son, 318 Columbia street, Brooklyn, N. Y	29,975
Isaac A. Walker & Son, 1213 Filbert street, Philadelphia, Pa	26,491

The firm of Isaac A. Walker & Son were the lowest bidders, but their proposal was $491 in excess of the available appropriation ($26,000). The question of scaling their bid so as not to exceed the amount available was duly considered and agreed to by this firm, and a contract was drawn up and signed on October 17, 1896, for the completion of this work. The improvements and repairs, a general account of which was embraced in the Bureau's last annual report, have been practically finished, and upon the completion of the additional building now being constructed by P. J. Carlin & Co., the hospital will be fully equipped for the care and treatment of the sick of the Navy, and will compare favorably with the most modern civil and military establishments at home and abroad.

Erection and completion of an additional building.—By act of Congress approved June 10, 1896, brick material was allowed to be used for construction of ward authorized by act approved July 26, 1894, and a similar additional ward allowed to increase needed capacity of hospital, making an amount of $50,000 available for the purpose, the same to be paid from that portion of the naval hospital fund accruing from the sale of naval hospital grounds to the city of Brooklyn and placed to the credit of the naval hospital fund, in pursuance of the provisions of the act approved July 2, 1890.

In view of the proposed increased accommodations for the sick, a board was recommended June 17, 1896, to determine upon and report to the Department the most desirable sites in the hospital grounds for the wards about to be erected under authority of the act referred to, and the approximate size and character of each ward; also to consider, in selecting the sites, the question of sunlight, accessibility to main building and court building under construction, preservation of architectural effect of hospital proper, and necessity of preserving harmony of all other buildings within the inclosure.

After a careful examination of maps and drawings, hospital buildings and grounds, the board recommended a building about 50 feet wide by 155 feet long, two stories high, with basement, built of buff-face brick and white marble or other light-colored stone trimmings, the building to be located parallel to the south wing of the main building and distant about 65 feet, thus receiving the sun's rays obliquely upon one side in the morning and upon the other side in the afternoon.

The recommendation of the board was approved by the Department.

Information regarding character of building, etc., was furnished architects in New York and Washington, upon their application, with permission to prepare preliminary drawings and estimates at their own risk and expense.

Satisfactory preliminary plans and specifications, approved by the Bureau October 5, 1896, for proposed new wards, were submitted by the firm of Smithmeyer & Didden, architects, of Washington, D. C., based upon the report of the board above mentioned, and authority was requested of the Department September 29, 1896, to have them present plans and specifications in detail, and to advertise for the work when such plans and specifications shall have been submitted and approved.

Upon receipt of Department's letter dated October 2, 1896, granting the desired authority, the architects were immediately notified to prepare the plans in question.

The detailed plans and specifications for the proposed wards were submitted by the architects (Messrs. Smithmeyer & Didden) November 2, 1896, and having been approved on the same date by the Bureau, advertisements were issued November 10, 1896, for the erection and completion of an additional building at the naval hospital, Brooklyn, N. Y.

The following bids were received and opened at 1 p. m., December 1, 1896, viz:

Thomas Dwyer, 106 East One hundred and sixteenth street, New York, N. Y.	$49, 749
M. Gibbons & Son, 318 Columbia street, Brooklyn, N. Y	47, 253
Charles McCaul, 10 North Eleventh street, Philadelphia, Pa	45, 874
Isaac A. Walker & Son, 1213 Filbert street, Philadelphia, Pa	45, 860
Murphy Bros., 407 East One hundred and first street, New York, N. Y	44, 553
K. A. Murphy, 96 Linwood street, Brooklyn, N. Y. (granite)	44, 200
P. J. Carlin & Co., 186 Remsen street, Brooklyn, N. Y	44, 000

Messrs. P. J. Carlin & Co. were the lowest bidders under the specifications for the proposed work, and were awarded the contract, which was duly signed December 14, 1896, and the firm informed under date of December 23, 1896, that they could enter upon the work at any time within ten days from such date.

The additional wards, when completed, will accommodate in times of peace 44 patients each, with four rooms for officers. The basement of the building will be laid in concrete, the walls to be built of burnt brick, the four fronts, cheek walls of main entrance, piers of porticos, chimneys, and piers of corridors to be faced with buff brick; and all stone, iron, and carpenters' work to be in accordance with the plans and specifications. The plumbing and gas fitting will conform with the regulations governing plumbing in the city of Brooklyn, N. Y., and the floors of bathrooms, lavatories, and vestibules of front entrance to be of granite mosaic laid in Portland cement. Combination gas and electric-light fixtures to be installed, and their selection to be made by the medical officer on duty in connection with the superintendence of this work. The building will be heated and ventilated in accordance with the most approved and modern systems.

Repairs of gatehouse, sidewalk, etc.—The entrance to the grounds has been materially improved by laying a sidewalk of artificial stone 680 feet long by 12 feet wide on Flushing avenue, extending the full length of the wall inclosing the grounds; by repairing the gatehouse, which has been enlarged and fitted up with steam heat, electric fixtures, bathroom, lavatory, etc.; and by the erection of two new gateways of ornamental and substantial pattern.

The early completion of the improvements and repairs and of the additional building at the hospital rendered it necessary that measures be taken toward renovating the grounds of the hospital inclosure. With this object in view a number of roadways through the grounds of the hospital were laid out and constructed; all old coal sheds, wooden outsheds, and fences were removed, and the entire grounds cleared of rubbish.

Naval hospital, Norfolk, Va.—The attention of the Bureau having been called to the urgent necessity of making extensive repairs to the annex building of this hospital, the commandant of the Norfolk Navy-Yard, upon the request of the Bureau, instructed Civil Engineer Asserson to make a careful examination of the building, and report upon the changes that he deemed necessary to put it in thorough repair.

Based upon the above report, repairs were commenced without delay, and on July 3, 1897, the Bureau was informed that the work previously authorized was completed.

The repairs consisted of the following, viz:

1. New sills were placed in the back of the porches, floors repaired where necessary, and eight 1⅜-inch round steel rods were put through

the buildings, with star anchors on the outside of each longitudinal wall, for the purpose of holding them together; also, six 1⅜-inch tie rods were put in transversely and all slack mortar joints on outside of building re-cemented.

2. Weatherboarding on the fourth story covering in the water tanks has been repaired and a new floor put down in the tank room.

3. New floors and overhead ceilings have been put in throughout the annex, new partitions put in on all of the floors to properly divide up the rooms, and steam radiators have been reset to suit the alterations in the various rooms.

4. The two porches for the first and second floors, extending the whole length of the building and over on the north wing of the building about 20 feet, have been completely covered in in window casings front and back, so as to form a complete inclosure connected with both wings of the main building.

5. Sixty-eight pairs of glazed sash have been hung on pulleys and fitted so that they can be ceiled in pockets in the wainscoating during the summer months, when complete circulation of air is desired, and which will completely inclose the porches when the windows are shut.

6. Three complete sets of lavatories, including washout water-closets, porcelained urinals, and wash basins, have been put in the basement and on first and second floors; new concrete and cement covered floors have been put down in each of the three lavatories; partitions separating water-closets from wash room have been put up, and new doors fitted and put in place; all of the old plumbing, piping, etc., in these places has been taken out.

7. All of the new work has received three coats of paint, the plaster walls have been repaired, and whitewash has been used on the old walls where formerly used.

Naval hospital, Chelsea, Mass.—Under an act approved March 3, 1897, making appropriations for the naval service for the fiscal year ending June 30, 1898, and for other purposes, Congress inserted the following provision, viz:

> Naval hospital, Chelsea, Massachusetts: To enable the Secretary of the Navy to cause the removal of the brick wall in front of the United States naval hospital on Broadway, in the city of Chelsea, Massachusetts, and to substitute in place thereof an iron fence, six thousand dollars, and one thousand dollars of this amount, or so much thereof as may be necessary, shall be used to repair the sea wall on the water front of said naval hospital.

As soon as the appropriation became available (July 1, 1897), and acting in accordance with the provisions of the above law, plans and specifications were prepared under the direction of the Bureau, the work was duly advertised for, and bids opened at 1 p. m. on September 14, 1897.

The following proposals were received, viz:

Edwin S. Marks & Co., Plymouth, Mass	$4,345
James Flynn, 76 Sudbury street, Boston, Mass	4,145
P. F. O'Neil and James J. Brock, 193 Sudbury street, Charlestown	4,130

The firm of P. F. O'Neil and James J. Brock being the lowest bidders were awarded the contract on September 24, 1897.

The specifications call for a granite foundation for the wrought-iron fence, extending from the northeast end of present brick wall to sea wall along present line of fence, the latter to be 6 feet high and substantially built, and painted with two coats of a carbonizing coating. There will be three wrought-iron gates, one double and two single. The specifications call for the commencement of the work ten days after notification to contractors by the Bureau that it is ready for them to enter upon the work, and they must prosecute the same so as to complete the contract in three calendar months.

Sea wall, naval hospital, Chelsea, Mass.—The same act contained an appropriation of $1,000, or so much thereof as may be necessary, to repair the sea wall on the water front of this hospital. The repairs are now being made and will soon be completed.

Naval hospital, Newport, R. I.—The naval appropriation for the fiscal year 1896, approved March 2, 1895, contained the following provision, viz:

> Naval training station hospital: For hospital for station, twenty thousand dollars.

As soon as the appropriation became available, plans were drawn and specifications prepared for a small hospital building, not to exceed in cost the amount authorized by law for its construction. Work on the building has been completed, and by Department's order dated November 12, 1895, was designated as a naval hospital, and subsequently transferred (September 29, 1896) to the Bureau of Medicine and Surgery, the senior medical officer of the station assuming charge of the hospital.

The hospital is a wooden structure of three stories, with two wings and a central administrative building. It consists of two wards, one in each wing, each with a capacity of twelve beds. On the second and third floors of the central building there are six rooms for sick officers, besides ample quarters for the accommodation of the junior medical officer attached to the hospital, who resides in the building.

The mess hall, kitchen, lavatories, bathrooms, water-closets, etc., are located in the administrative building.

Since the transfer of the hospital to this Bureau much work has been accomplished in properly fitting up the building for the reception and treatment of the sick. The hospital has been wired and the electric light introduced, chemical and bacteriological rooms fitted up; one of the rooms transformed into an operating room, and provided with a complete and modern antiseptic outfit. A disinfector, upon plans and specifications drawn under the supervision of the Bureau, is now being installed, and will be completed at an early date.

Naval hospital, Port Royal, S. C.—The naval appropriation bill for the fiscal year ending June 30, 1898, contains the following provision, viz:

> Naval hospital, naval station, Port Royal, South Carolina: For hospital at the naval station at Port Royal, South Carolina, four thousand dollars.

In accordance with the foregoing act, plans and specifications for a hospital building were prepared by Civil Engineer George Mackay, U. S. N., attached to the naval station, Port Royal, S. C., and after approval by the Bureau the work was advertised for July 12, 1897, and bids were opened at 1 p. m. August 3, 1897.

The following proposals were received, viz:

R. R. Legare, Port Royal, S. C	([1])
D. Getaz & Co., Knoxville, Tenn	$5,978
Simons & Mayrant, 15 Broad street, Charleston, S. C	4,575

The firm of Simons & Mayrant, No. 15 Broad street, Charleston, S. C., submitted the lowest bid. As their bid, however, was $575 in excess of the amount appropriated by Congress for the proposed hospital, the Bureau was unable to award the contract for this work, Messrs. Simons & Mayrant having declined to scale their bid within the amount authorized by law.

As it does not appear probable that the hospital can be constructed for the sum appropriated, viz, $4,000, the Bureau would recommend that the amount be increased to $5,000, and an estimate for $1,000 additional will be submitted to the Department at the proper time, with the request that it be transmitted to Congress with a favorable indorsement.

---

[1] Blank bid.

The hospital will be a two-frame structure of one story each, the sides weatherboarded, roofs tinned, connected and surrounded by verandas. The plans and specifications provide for two pavilion wards, each having accommodations for 6 patients, with a central administrative building, in which are located the surgeon's office, dispensary, nurses' rooms, bathrooms, water-closets, etc.

A small structure some 30 feet from and to the rear of the main building, surrounded by verandas and connected with it by a covered passageway, contains the kitchen, mess hall, etc.

Should an emergency arise, the number of beds in each ward could be readily doubled, thus affording accommodations for 24 patients. Under ordinary conditions, however, and with the present number of officers and men attached to the station, the proposed hospital is sufficiently large and well adapted to meet the requirements of the service.

EXTENSION OF NAVAL HOSPITAL, WASHINGTON, D. C.

The necessity of increasing the hospital accommodations for sick and wounded officers and men of the Navy becomes more imperative with the enlargement and growth of the naval establishment on this station.

Patients are received at this hospital chiefly from the navy-yard and marine headquarters, but from time to time they are transferred here from other hospitals, from coast survey-vessels, and from other vessels, foreign or belonging to our own Navy, which may be in port; also old sailors and marines on the retired list who have no suitable home, and when taken ill find a refuge here.

There is but one separate room in which a sick officer can be isolated. Additional accommodations should be provided, so that the two principal floors could be allotted to patients, the lower or main floor to officers, and the second floor to enlisted men.

The administrative part of the building should be assigned to an annex, which could be easily built within the present inclosure and in connection with the hospital proper, leaving the entire hospital building for its legitimate purposes.

The annual estimates submitted for the fiscal year 1899 contain an item of $15,000 for the proposed building.

CEMETERIES AT NAVAL HOSPITALS.

The plan initiated within the past few years of placing in a thorough state of repair the cemeteries attached to the several naval hospitals will be adhered to and continued by the Bureau until they have all been renovated and present a creditable appearance.

The improvements authorized by Congress for the cemeteries at Mare Island, Cal., and Brooklyn, N. Y., have been completed, and have put them in a condition to be easily cared for in future by the hospital employees. The medical director in charge of the United States naval hospital, Norfolk, Va., in a communication dated July 13, 1896, calls attention to the urgent necessity of renovating the cemetery at that hospital. The Bureau concurs in his recommendation, and the sum of $1,000 for this purpose has been submitted in the estimates.

NAVY-YARDS.

Navy-yard, Portsmouth, N. H.—The health of the yard for the past year has been excellent, as shown by the quarterly statistical reports.

Navy-yard, Boston, Mass.—The number of admissions to the sick list was somewhat greater than in the previous year, being 196. Of these, 82 were ascribed to climatic causes. A few cases of malarial fever appeared, but those affected had been exposed prior to arrival at the yard. Thirty-four persons were transferred to hospital, 12 with venereal diseases and 4 with alcoholism.

Two hundred and fifty-three vaccinations were performed during the year, and 65, or 25 per cent, were successful.

Marine barracks.—Improvements worthy of note are the introduction into the water-closets of new automatically flushed hoppers and open slate urinals, with new plumbing throughout. Increased ventilation has been secured in that locality by an opening cut through the wall facing the street. New washbowls, an additional bath tub, and two shower baths, with new plumbing, have been put in the bathroom.

The bakery, recently installed, is badly placed in a dark and poorly ventilated room under the southern end of the barracks. While part of the courtyard floor surrounding the drain inlet has been concreted, it appears that the whole of the floor space should be covered with waterproof material.

The same defects in ventilation which have been pointed out in previous reports exist in these buildings as a whole.

Prison.—Attention is called to the necessity of improving the ventilation, of substituting grating for the wooden fronts of the cells, and of abolishing the middle cells.

Drains.—The present condition is far from satisfactory. The drain from the houses at the south end of the yard has been connected with the metropolitan sewer system, but no other changes have been made to improve a system of drainage which is a constant menace to the health of the yard. It is hoped that all drains carrying sewage will be connected in the near future with the system of the metropolitan sewer company.

Dispensary.—The sanitary condition of this building has been greatly improved, but further repairs and modifications are, it is believed, under consideration.

Navy-yard, New York.—The sanitary condition of this yard has been satisfactory. No infectious or contagious disorder has appeared, and the general health has been good.

One hundred and thirty-four accidents occurred among the workmen employed in the yard, and fourteen of these cases were sent by ambulance either to their homes or to hospital. During the hot weather in August there were five cases of prostration in this class from exposure to high temperature. The following is the classification of the injuries and emergency diseases, all of which were given preliminary treatment: Vulnus contusum, 40; vulnus incisum, 8; vulnus laceratum, 40; stremma, 4; vulnus punctum, 3; contusio, 11; ambustio, 4; abrasio, 9; fractura, 9; appendicitis, 1; febris thermica, 1; prostratio thermica, 4. A death resulting immediately from falling into moving machinery is classed as fractura.

Marine barracks.—The health of the marine barracks has been good, but a number of cases of intermittent fever originated there, caused by work outside the yard, in digging a basin for boats, near the city market. A number of cases of follicular tonsilitis also occurred among members of the Marine Corps.

Navy-yard, League Island, Pa.—No important changes have been made in this yard. It is expected that the completion of the artesian well will remove one of the most insanitary conditions.

One case of typhoid fever occurred at the barracks, but as no other appeared, it probably was not due to any local cause.

Navy-yard, Washington, D. C.—While the health of the yard during the past year has not been satisfactory, the intensity of disease was not as great as in the previous year and the number of transfers to hospital and of sick days was less. As compared with 1895, malarial fevers, though very prevalent in the summer and autumn months, were somewhat less common. In 1895 there were 163 cases in a complement of 165 and during the past year 103 in a complement of 157. In the former year the cases of remittent exceeded those of intermittent fever, while the reverse was the case during the past year. The persons who have suffered most in proportion to their numbers are the seamen under instruction in gunnery. It appears that the situation of the seamen's quarters is responsible for some of this sickness, as their sleeping quarters are the lowest in the yard, and only 10½ feet above the lowest portion of the grounds. Measures have been undertaken to improve this condition, as it is understood that another building is being prepared for their accommodation. It is undoubtedly true, however, that the health of the yard can not be secured unless the Anacostia flats be reclaimed.

Surgical treatment was given in 60 cases of injuries occurring among workmen employed in the yard. These injuries are classed as follows: Incised wounds, 17; contused wounds, 17; lacerated wounds, 14; punctured wounds, 2; contusion, 5; fracture, 2; sprain, 1; hernia, 1; burn, 1.

Navy-yard, Norfolk, Va.—The health of the yard was not as satisfactory as during the previous year, as there were 162 admissions to the sick list from a force of 122 men. The daily average of patients was, however, only 1.48, as each case was under treatment but a short time. There were 30 cases of malarial disease admitted during the year.

Navy-yard, Pensacola, Fla.—The sanitary condition of the yard has been good, and the health of the officers and men has been excellent.

Navy-yard, Mare Island, Cal.—The health of the yard has been good during the year. Improvements have been made in the system of sewerage, and additional work is being done with that end in view. This work, it is believed, will greatly improve the sanitary condition.

The recommendations for a new building, to be used exclusively by the medical department, is urgently renewed, as the present accommodations are entirely unsuitable and not sufficient for the preservation of medical stores necessarily kept at the yard.

NAVAL STATIONS.

Naval station, New London, Conn.—The health of the station has been relatively good. A few cases of intermittent fever occurred, which readily yielded to treatment. Though this disease was not as prevalent as in the previous year, it marks the effect of the salt and fresh marshes adjacent to the reservation, and shows the advisability of a system of sewerage.

Naval station, Annapolis, Md.—While the number of sick days has been slightly greater than in the previous four years, the low rate of sickness reported for several years has been maintained. From influences outside of the Academy limits, one case each of typhoid fever, measles, and chicken pox occurred among cadets, and two cases of scarlatina in an officer's family. By the prompt adoption of preventive measures no other cases of these diseases appeared.

Attention is called to several cases of eye strain occurring among cadets working in deficient light, particularly in the rooms set apart for drawing classes. Wherever practicable, in default of a suitable building, skylights should be constructed and suitable overhead lights with reflectors provided.

The Academy buildings, several of which are unsatisfactorily heated and badly ventilated and lighted, remain in the unsuitable condition mentioned in the report of the previous year.

The game of football furnished 19 admissions to the sick list, with 68 sick days and 63 excuses from drill.

The installation of new and satisfactory water-closets in the cadet quarters is reported, as well as plans for the construction of a sewerage system throughout the old grounds and leading by one outlet into deep water, to replace the present defective system.

During the past year a room in sick quarters has been temporarily set apart and fitted with modern aseptic appliances as an operating room.

There is marked need at the Academy for an addition to the sick quarters to provide for an operating room, bacteriological laboratory, and consulting or prescribing room for cadets.

Marine headquarters, Washington, D. C.—While the health of the post has been satisfactory during most of the year, malarial disease has prevailed during the autumn, though not to the same extent as in 1895, when it caused nearly one-half of the total number of cases treated. During the year about one-third of the admissions to the sick list were on account of malarial poisoning. With the exception of 1895, when the exacerbation was very marked, there has been a steady increase in malarial disease at this post. It is thought very probable that cases of this disease can be diminished in number and severity by removing the sleeping quarters of the men from the ground floor. During the last quarter of the year there also occurred 5 cases of typhoid fever. A careful sanitary survey failed to determine a local cause. In view of the frequent arrival of recruits from other points and the full liberty given the men, the cause was believed to be without the post. It is, however, evident that the dormitories are old and also badly planned, and that other quarters should be provided for all those men now sleeping on the ground floor. Better facilities are also needed for making physical examinations, and suitable quarters should be provided for that purpose.

Naval station, Port Royal, S. C.—The health of this station has been fairly good, though the number of sick days has been double that of the previous year. A more sanitary condition is being secured by filling in low places and limiting the area of tidal overflow.

The cistern capacity is inadequate to the needs of the station, and water arriving in lighters from Port Royal is invariably contaminated with salt water.

Naval station, Puget Sound, Washington.—The average complement of this station during the year was 11. The health was remarkably good, as there were only 2 admissions to the sick list, and the diseases were of a very trivial character, the number of sick days being 4.

During the latter part of the year there was, however, a considerable increase in the number on duty at this station, and in view of its position and increasing importance, the necessity for a small pavilion hospital is becoming apparent.

RECEIVING SHIPS.

U. S. receiving ship Wabash.—The health has been excellent. No changes have been made in the ship, but external hygienic conditions have been improved by the completion of the metropolitan system of sewerage, which has given another channel for the flow of sewage that until recently contaminated the water and air about the ship from a sewer directly opposite.

During the year there were no admissions for venereal diseases, and but 6 transfers to hospital.

U. S. receiving ship Vermont.—The sanitary condition of the ship has been excellent and the health of the crew has been remarkably good.

During the year there were no deaths, and 192 new cases under treatment, with 33 transfers to hospital.

U. S. receiving ship Richmond.—The health of the ship has been good, and no disease has occurred attributable to any insanitary condition existing on board. During eight months of the year distilled water is used by the crew, but after the fires are extinguished the ship is supplied by a water boat with water from the Delaware River at the northern part of the city. While answering all chemical requirements, this supply of water can not be regarded as above suspicion, though apparently no harmful results have been traced to it.

The berthing space has been greatly increased by removal of projecting parts of the engine-room fixtures and by the addition of space formerly occupied by the sick bay and dispensary. Additional comfort has also been secured by uniting the forecastle and poop decks. An improvement in sanitation would result from the introduction of the incandescent lamp.

U. S. receiving ship Franklin.—A relatively large number of cases of remittent fever occurred during the year, due, it appears, to climatic conditions in the summer and autumn months. There were 3 deaths, 1 from typhoid fever and 2 from apoplexy. No sickness occurred that was traceable to any special cause in the ship, although the head and water closets forward have been in a faulty condition. As the decks are large and the number of men on board relatively small, there is never overcrowding.

The sanitary condition has been improved by the recent introduction of electric lights, supplied from the plant in the navy-yard.

U. S. receiving ship Independence.—The sanitary condition of this ship has not been satisfactory during the year. This seems to be due largely to the long period that the vessel has been in commission and to the condition of woodwork. The ratio per 1,000 of force daily sick was greatly in excess of that on the other receiving ships in spite of the more numerous transfers to hospital. The record shows 26 cases of malarial disease and 1 of typhoid fever. There were also 5 cases of mumps and 10 of rubella, due to the influence of San Francisco and adjacent cities. There were 58 transfers to hospital and 1,805 sick days in an average complement of 301.

NAVY PENSIONS.

Number of pension cases remaining on hand June 30, 1896	0
Number received during fiscal year ending June 30, 1897	2,696
Number answered during fiscal year ending June 30, 1897	2,696
Number remaining on hand June 30, 1897	0
Number of cases for board of medical examiners received and answered	152
Number of cases for retiring board received and answered	43
Number of cases from Judge-Advocate-General of the Navy received and answered	14
Number of cases from Civil Service Commission received and answered	19
Number of Congressional, Auditor for the Navy Department, and miscellaneous letters received and answered	120
Number of certificates of death received	124
Number of reports of medical survey received and acted upon	546
Number of reports of physical disqualifications received and acted upon	225

UNITED STATES NAVAL MUSEUM OF HYGIENE.

In his annual report, Medical Director Bates, in charge of the museum, gives an interesting sketch of the various steps through which this establishment has passed from its foundation, in 1882, to its present state of growth and development.

By order of the Department, the old Naval Observatory was transferred, January 20, 1894, to the Bureau of Medicine and Surgery, with the view of its being utilized as a permanent establishment for the United States Naval Museum of Hygiene.

The buildings of the museum, which were greatly in need of repairs when transferred to this Bureau, have been gradually renovated as the funds available for such purpose would permit; the grounds have been graded, the roads put in order, and the museum is now in a condition to carry out the purposes for which it was established. The new steam heating plant, to which attention was called in the Bureau's last annual report, has been introduced, and has proven to be efficient and economical.

With the view of enlarging the usefulness of the museum, the Bureau has had plans and specifications prepared for repairing the west wing of the building, work on which has commenced and will soon be completed.

The authorities in charge of the Centennial Exposition at Nashville, Tenn., having requested, through the Department, an exhibit from the museum, twenty-three cases were forwarded and are now on exhibition there.

The work of the laboratory has steadily increased, including a large number of water and urinary analyses, besides miscellaneous examinations, special reports, and experimental work on disinfectants, etc.

The museum is now permanently established in a building admirably adapted for all its purposes, having ample space for laboratory and lecture rooms and fully equipped bacteriological and chemical laboratories.

SUPPLY TABLE, MICROSCOPES, ETC.

The supply table of the Medical Department of the Navy has been employed with marked satisfaction throughout the service. Additions have been made from time to time in accordance with the advances in medicine and surgery, and it is believed that the outfits of ships and stations are now adapted to thoroughly meet the requirements of the naval service. The supply of surgical instruments and appliances is especially worthy of observation, as the old outfits have been systematically replaced by instruments of the best make and most modern pattern.

The cases of microscopes and accessories recently prepared under the direction of the Bureau have now been completed. Several outfits have already been supplied to hospitals, and a number are now ready for issue to ships. Every care has been exercised in the arrangement of these cases, and it is believed that they represent an improvement which will greatly increase the facilities for accurate diagnosis and lead to greater precision in the treatment of disease.

INSTALLATION OF DISINFECTING PLANT AT NAVAL HOSPITALS.

In the Bureau's annual report for 1896 mention was made of the fact that all naval hospitals would be equipped with sterilizers as speedily as possible consistent with good work.

The disinfectors have been installed at the following hospitals, viz: Portsmouth, N. H., Chelsea, Mass., Newport, R. I., Brooklyn, N. Y., Philadelphia, Pa., Washington, D. C., Norfolk, Va., and Mare Island, Cal.

Preliminary steps are now being taken by the Bureau for the installation of a disinfecting plant at the United States naval hospital, Yokohama, Japan.

ASEPTIC OPERATING ROOMS—BACTERIOLOGICAL AND CHEMICAL LABORATORIES.

All naval hospitals have been fitted up with modern aseptic operating rooms, and also with bacteriological and chemical laboratories, contributing greatly to the welfare of sick and wounded officers and men of the Navy and increasing the efficiency of these establishments.

BOOK OF INSTRUCTIONS.

The revision of the Book of Instructions for Medical Officers is proceeding gradually, as the work is undertaken in connection with the many changes perfected under the direction of the Bureau. It is expected, however, that it will be completed at an early date, and will include improved diet tables for hospitals and a uniform system of regulations for the administration of those institutions, together with instructions relating to recruiting, inventories, requisitions, surveys, sanitary reports, and methods to be observed in the care of supplies.

THE MEDICAL CORPS OF THE NAVY.

During the fiscal year ending June 30, 1897, the Department received 275 applications for information concerning the appointment of assistant surgeons in the Medical Corps of the Navy.

During the same year permits to appear before the naval medical examining boards, for examination for admission into the Medical Corps of the Navy, were issued to 44 candidates, as follows:

Pennsylvania	3	California	1
Georgia	1	Ohio	2
Massachusetts	4	Indiana	1
Maryland	3	Illinois	2
South Carolina	2	Missouri	3
New Hampshire	1	Michigan	2
Virginia	3	Florida	1
New York	9	Iowa	1
North Carolina	1	West Virginia	2
Tennessee	1	District of Columbia	1

Of the above number 36 appeared before the examining boards, of whom 8 were rejected physically, 19 rejected professionally, and 9 were found physically and professionally qualified for admission as assistant surgeons into the Medical Corps of the Navy.

The successful candidates were appointed from the following States, viz:

Pennsylvania	1	Virginia	1
New Hampshire	1	North Carolina	1
New York	1	California	1
Tennessee	1	West Virginia	1
Massachusetts	1		

Within the past year the number of vacancies in the Medical Corps has increased, there being 15 vacancies at the present time, nor does there appear to be any immediate prospect toward filling the corps.

Legislation looking toward the improvement of the present status of assistant surgeons in the Navy and placing them on a similar footing with assistant surgeons of the Army is urgently needed, and a bill having this object in view will be submitted to the Department for its consideration at an early date, with the recommendation that it be transmitted to Congress with a favorable indorsement.

PASSED ASSISTANT SURGEONS.

Congress during the past session passed the following act to commission passed assistant surgeons in the United States Navy and to provide for their examination preliminary to their promotion to the grade of surgeon:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That passed assistant surgeons now borne upon the Navy Register shall be commissioned as such by the President, such commissions to bear the dates upon which said passed assistant surgeons, respectively, received their appointments as such; and hereafter assistant surgeons shall be regularly promoted and commissioned as passed assistant surgeons, and passed assistant surgeons as surgeons, subject to such examinations as may be prescribed by the Secretary of the Navy: *Provided, however,* That no examination of passed assistant surgeons shall be ordered until the expiration of six months from the passage of this act, during which time promotions shall be made as now provided by law.

In accordance with the above law, and to carry out the provisions contained therein, the following special circular (No. 29), dated February 25, 1897, was issued by the Department, viz:

The following regulations, designed to meet the requirements of the act of Congress approved February 13, 1897, entitled "An act to commission passed assistant surgeons in the United States Navy, and to provide for their examination preliminary to their promotion to the grade of surgeon," are hereby published for the information and guidance of all concerned:

I. From and after August 13, 1897, passed assistant surgeons entitled to promotion shall be examined, in accordance with existing law relating to examination and promotion of officers in the Navy, as to their mental, moral, professional, and physical qualifications for promotion to the grade of surgeon, such examinations to be held, whenever practicable, within the United States.

II. Examinations shall be made under the following heads:

1. Mental and moral.
2. Professional.
3. Physical.

The mental, moral, and professional examinations shall be conducted in accordance with the provisions of Articles 1708 and 1709, United States Navy Regulations, and the board will make its report in accordance with the provisions of Article 1710 of said regulations. The professional examination shall comprise the following subjects:

(*a*) Navy regulations so far as they relate to the Medical Department or to the medical officer as an officer of the Navy.

(*b*) Thesis, general and naval hygiene.

(*c*) Thesis, clinical medicine, including recent progress in etiology, pathology, and therapeutics.

(*d*) Practical work in bacteriological and chemical laboratory.

(*e*) Microscopy and microbiology, in relation to diagnostic work.

(*f*) Military surgery, including new operative procedures and the technique of aseptic surgery.

The physical examination will be conducted in accordance with the provisions of Article 1707, United States Navy Regulations.

The service is to be congratulated on the enactment into law of the above bill, which will have a far-reaching effect in stimulating the younger members of the corps in their scientific and professional studies, while increasing the efficiency of the Medical Department of the Navy.

MEDICAL ASSOCIATIONS.

Pan-American Medical Congress.—The Mexican Government, through its minister at this capital, extended an invitation, under date of February 23, 1896, to this Government for representatives from the Medical Department of the Navy to be present at the second Pan-American Medical Congress.

The congress met in the City of Mexico on the 16th, 17th, 18th, and 19th of November, 1896, and Medical Director George W. Woods, U. S. N., in charge of the United States naval hospital, Mare Island, Cal., was ordered by the Department to represent the Medical Corps of the Navy. An interesting paper prepared by him, entitled "Intestinal obstruction," and presented for discussion before the meeting, will be read with much interest.

American Public Health Association.—Upon the request of the secretary of this association to the Department for representation at their twenty-fifth annual meeting in Buffalo, N. Y., September 15–18, 1896, Medical Director N. L. Bates, in charge of the United States Naval Museum of Hygiene, was ordered to represent the Medical Department of the Navy.

The next meeting of the association will be held at Philadelphia, Pa., October 26–29, 1897.

Association of Military Surgeons of the United States.—This association held its seventh annual meeting at Columbus, Ohio, May 25 to 27, 1897, and the Medical Department of the Navy was represented by Medical Inspector J. C. Wise and Surg. Philip Leach.

The eighth annual meeting of this association will be held in Kansas City, Mo., June 1, 2, and 3, 1898.

The American Medical Association.—The forty-eighth annual meeting of the American Medical Association was held in Philadelphia, Pa., June 1–4, 1897, and the Medical Department of the Navy was represented by Medical Directors W. K. Scofield and George H. Cooke and Medical Inspector W. G. Farwell.

Twelfth International Medical Congress.—In compliance with a request from the Russian Government, dated March 6, 1897, forwarded through the Secretary of State to the Navy Department, for delegates to represent the Medical Corps of the Navy at the Twelfth International Medical Congress, Medical Director W. K. Van Reypen, U. S. N., was appointed, and was ordered on the 7th of June, 1897, as a naval medical delegate to attend the meeting of the Congress to be held in Moscow, Russia, August 19 to 26, 1897. The Russian Government was also officially informed that Medical Director Van Reypen would prepare and submit to the congress for discussion a paper entitled "Handling and care of wounded in modern naval warfare." A copy of this paper will be found among the special reports.

Upon the adjournment of the congress, and before returning to the United States, Medical Director Van Reypen was instructed to visit and inspect the museums of Berlin and Paris, paying special attention to and reporting upon all matters relating to naval hygiene.

International Conference of Hygiene and Sanitary Service on Railways and Shipboard.—The Department having been officially invited, under date of May 10, 1897, to send delegates to the above-mentioned conference, Surg. James D. Gatewood, U. S. N., was appointed, and was ordered on the 27th of July, 1897, as a delegate to represent the Medical Department of the Navy at the second meeting of the conference, to be held at Brussels, Belgium, the 6th, 7th, and 8th of September, 1897.

The Belgium Government was also informed through official channels that Surgeon Gatewood would prepare and submit for discussion at the conference a paper entitled "Physical examinations and sanitation in the United States Navy."

During the meeting of the conference this officer was directed to pay special attention to the discussion of all subjects pertaining to hygiene and sanitary service on shipboard.

International Conference on Leprosy.—The German Government, through its ambassador at this capital, extended an invitation, on May 21, 1897, to the Department to be represented at an international conference to be held at Berlin, Germany, October 11 to 16, 1897, for the purpose of discussing the leprosy question.

The object of the conference, as outlined in its programme, is primarily a scientific discussion of the leprosy question, with a view to the formulation of the results as a basis for legislation and international agreement by the Governments of the countries concerned in the efforts to limit or suppress the disease.

Surg. James D. Gatewood was appointed a delegate to represent the Medical Department of the Navy at this conference, and the German Government was informed officially to that effect.

In the letter of special instructions issued by this Bureau, Surgeon Gatewood was directed to give particular attention to the measures proposed for checking and suppressing the disease and to any legislation on the subject suggested by the conference.

Investigation of plague in China and cholera in Japan.—Upon the request of the Surgeon General of the Navy, and by direction of the Department, P. A. Surg. W. F. Arnold was detached from the U. S. S. *Petrel*, Asiatic Station, and ordered, September 16, 1895, on special duty in connection with the investigation of the outbreak of plague in China and of cholera in Japan, and the United States representatives in those countries requested to obtain the necessary authority to enable him to carry on the work desired.

Dr. Arnold's duty extended over a period of ten months and, being completed, he was detached and ordered home July 1, 1896.

A detailed account of his investigations will be found among the special reports.

GENERAL SANITARY RULES.

The necessity for a comprehensive and uniform system of sanitary rules, to which attention was called in several previous reports, has been recognized, and a carefully-considered circular of instructions, prepared by this Bureau, was issued by the Department under date of April 8, 1897.

The circular deals with the following important subjects:

(*a*) Ventilation.
(*b*) Water supply.
(*c*) Food.
(*d*) Clothing.
(*e*) Infected ports.
(*f*) Unhealthy ports and precautionary measures to be observed.
(*g*) Yellow fever, cholera, and smallpox.
(*h*) Infections on board ship.
(*k*) Disinfection.
(*l*) Precautions to be observed by landing parties in unhealthy localities.

The promulgation of this circular is a decided advance in efforts to promote the sanitary interests of the service, and doubtless will be attended by beneficial results.

REVISION OF DIET TABLES AT HOSPITALS.

A new full diet table for the use of the various naval hospitals has been compiled by the Bureau during the year, and is now in use. In the preparation of the table every care has been exercised to provide for a proper quantity of the various proximate principles in a variety of foods suitable for hospital patients on a liberal diet.

The table represents the results of careful calculations, associated with consideration of the preferences developed by a seaman's life, which have been given such weight as the circumstances permit.

The uniformity now secured in the full diet at the various hospitals is of great importance, and by a better selection and adjustment of foods will lead not only to increased comfort, but also to greater content and better results in the treatment of disease.

PORTABLE OPERATING TABLES.

The outfit furnished the Medical Department of the Navy has been improved and elaborated from time to time as the value of new therapeutic preparations and modern surgical instruments and appliances for the care and treatment of the sick have been practically demonstrated and brought to the attention of the Bureau.

For some time past the desirability of substituting a more modern aseptic operating table, and one of uniform standard, for obsolete pattern now used for this purpose on board of our ships has been recognized, and with this object in view, a board of medical officers (upon the recommendation of this Bureau) was ordered by the Department, under date of December 7, 1896. The board, after careful consideration, recommended the adoption of a "portable operating table" constructed by a local New York firm in accordance with designs furnished them by a medical officer of the Navy. Their report states:

> We find the table simple and strong in its construction, compact when folded, and easily handled; the latter consideration being quite essential in the modern ships, where its use may be required in different parts of the ship. We can suggest no changes for its improvement, and we recommend it for use on board ship.

The report of the board was submitted to the Department, and having been approved by the Bureau, the director in charge of the United States National Laboratory and Department of Instruction was instructed to issue the new portable operating table as a part of the outfit of all vessels going into commission, and to furnish them upon approved requisition to ships already in commission.

AMBULANCES.

All of the naval hospitals have been furnished with ambulances, with the exception of those at Newport, R. I., and Pensacola, Fla., and in the annual estimates for 1899 an item of $600 has been inserted for supplying an ambulance at the Pensacola hospital.

So carefully were the needs of the service considered in the selection of a type for the first three ambulances which were furnished to the hospitals at New York, Boston, and Norfolk, respectively, that in the specifications and plans adopted for those subsequently ordered the original design has been practically unchanged, notwithstanding the fact that close attention has been given to such changes as have from time to time been made in ambulance construction on the part of the various civil hospitals and departments of public charity.

HANDLING SICK AND WOUNDED—AMBULANCE SHIPS.

In several previous reports the Bureau has called the attention of the Department to the advisability of adopting such measures for the care and treatment of the sick and wounded officers and men as may be necessary to meet the requirements of modern naval warfare.

New methods of succor for the wounded must be devised to meet the conditions which now confront the medical officer, and with this object in view plans for an ambulance ship have been prepared, under the supervision and direction of Medical Director W. K. Van Reypen, U. S. N., and his paper, read before the Twelfth International Medical Congress, held at Moscow, Russia, August 19 to 26, 1897, giving a detailed description of a vessel designed especially for this purpose, will be found among the special reports, and will be read with great interest.

NAVAL HOSPITAL CORPS.

With the near approach to completion of the improvements and repairs at the several naval hospitals, which were commenced a few years ago, and as a result of which these institutions are now placed on an equal footing with our leading civil establishments in all that pertains to modern medical and surgical requirements, the necessity of making suitable provision for the equipment of a naval hospital corps becomes more urgent, and attention is again called to the proposed bill for the establishment of such an organization, submitted to the Department under date of February 3, 1896, and which, in its essential details, was incorporated in the Bureau's last annual report.

The importance of special training on the part of those who, as attendants, are intrusted with the care of the sick has so impressed itself upon the management of civil training schools that in many instances the length of time to be devoted to such study has been increased from two to three years, and when it is considered that as a rule the students of such institutions enter upon their special course of training with a reasonably fair preliminary education, the absolute unfitness of naval nurses (baymen) under the present system of appointment, without even an elementary knowledge of the duties required of them, is too obvious for serious discussion.

Careful attention is being paid by the principal foreign Governments to the development and perfection of this branch of military organization, and measures looking toward the same end have already been adopted by the National Guard and Naval Militia in many of the States of the Union.

The steady advance in general favor and efficiency of the Hospital Corps of our own Army, which has been organized upon a system capable of being developed to meet every emergency, accentuates very pointedly the deficiencies existing in this department of the Navy, and demonstrates conclusively the necessity of initiating without delay such steps as may be deemed advisable by the Department to organize and perfect a naval hospital corps, and place it on a basis commensurate with the requirements of the service.

X-RAYS.

The experience of the medical profession at home and abroad, within the past two or three years, confirms beyond a reasonable doubt the favorable impressions first entertained in regard to the efficacy of the Roentgen rays and their successful application in the domain of surgical diagnosis.

With the aid of the fluoroscope the present resources of clinical medicine have been much supplemented, and the determination of visceral outline in health and disease brought within the limits of scientific accuracy.

Many of our modern civil hospitals, recognizing its present importance and the possibilities of its future development, have been fitted up with the apparatus necessary for undertaking such work, and it is the intention of the Bureau to install, as soon as practicable, facilities for similar research in the principal naval hospitals.

The health record of the Navy and Marine Corps for the year 1896 has been satisfactory, as shown by the statistical tables embraced in the body of the report.

Very respectfully,

J. C. BOYD,
Acting Chief of Bureau.

The SECRETARY OF THE NAVY.

Estimates of appropriations required for the service of the fiscal year ending June 30, 1899, by the Bureau of Medicine and Surgery, Navy Department.

Detailed objects of expenditure, and explanations.	Estimated amount which will be required for each detailed object of expenditure.	Total amount to be appropriated under each head of appropriation.	Amount appropriated for the current fiscal year ending June 30, 1898.
SALARIES.			
Chief clerk (appropriated, act of February 19, 1897)	$1,800.00		
One clerk of class 3 (same act)	1,600.00		
One clerk of class 2 (same act)	1,400.00		
One clerk of class 1 (same act)	1,200.00		
One clerk (same act)	1,000.00		
One laborer (same act)	660.00		
One janitor for naval dispensary (same act)	600.00		
One laborer for naval dispensary (same act)	480.00	$8,740.00	$8,740.00
MEDICAL DEPARTMENT.			
For surgeons' necessaries for vessels in commission, navy-yards, naval stations, Marine Corps, and coast survey, and for the civil establishment at the several naval hospitals, navy-yards, naval laboratory, and department of instruction, museum of hygiene, and Naval Academy.—(Appropriated, act of March 3, 1897)	65,000.00	65,000.00	65,000.00
NAVAL HOSPITAL FUND.			
For maintenance of the naval hospitals at the various navy-yards and stations, and for care and maintenance of patients in other hospitals at home and abroad.—(Appropriated, act of March 3, 1897)	20,000.00	20,000.00	20,000.00

Estimates of appropriations required for the service of the fiscal year ending June 30, 1899, by the Bureau of Medicine and Surgery, Navy Department—Continued.

Detailed objects of expenditure, and explanations.	Estimated amount which will be required for each detailed object of expenditure.	Total amount to be appropriated under each head of appropriation.	Amount appropriated for the current fiscal year ending June 30, 1898.
CONTINGENT, BUREAU OF MEDICINE AND SURGERY.			
For freight, expressage on medical stores, tolls, ferriages, transportation of sick to hospital, transportation of insane patients; care, transportion, and burial of the dead; advertising; telegraphing; rent of telephones; purchase of books and stationery; binding of medical records, unbound books and pamphlets; postage and purchase of stamps for foreign service; expenses attending the medical board of examiners; rent of rooms for naval dispensary; hygienic and sanitary investigation and illustration; sanitary and hygienic instruction; purchase and repairs of wagons and harness; purchase of and feed for horses and cows; trees, plants, garden tools, and seeds; furniture and incidental articles for the museum of hygiene, naval dispensary, Washington; naval laboratory, sick quarters at Naval Academy and marine barracks, surgeons' offices and dispensaries at navy-yards and naval stations; washing for medical department at museum of hygiene, naval dispensary, Washington; naval laboratory and department of instruction; sick quarters at naval academy and marine barracks, dispensaries at navy-yards and naval stations, and ships and rendezvous, and for minor repairs on buildings and grounds of the United States Naval Museum of Hygiene, and all other necessary contingent expenses (appropriated act of Mar. 3, 1897) ..	$30,000.00	$30,000.00	$30,000.00
REPAIRS, BUREAU OF MEDICINE AND SURGERY.			
For necessary repairs of naval laboratory and department of instruction, naval hospitals and appendages, including roads, wharves, outhouses, sidewalks, fences, gardens, farms, and cemeteries (appropriated act of Mar. 3, 1897)	20,000.00	20,000.00	20,000.00
AMBULANCE FOR NAVAL HOSPITAL.			
For supplying one naval hospital with ambulance of modern construction to replace vehicle condemned as useless (appropriated act of Mar. 3, 1897)	600.00	600.00	1,200.00
NAVAL CEMETERY, UNITED STATES NAVAL HOSPITAL, NORFOLK, VA.			
For labor and material for widening of approaches and repairing and painting all gates and fences; for making graveled roads and paths, building walls where necessary, properly grading the whole area, and planting appropriate shrubbery (appropriated act of Mar. 3, 1897..	1,000.00	1,000.00	1,000.00
SUBMITTED.			
For annex to United States Naval Hospital, Washington, D. C., to increase accommodations for sick officers and men on the station	15,000.00	15,000.00	....
EXPLANATORY NOTE.—The capacity of this hospital is not sufficient to accommodate the patients who are received from the United States Marine Barracks and Navy-Yard, Washington, D. C.; Naval Proving Ground, Indian Head, Md.; Naval Academy, Annapolis, Md.; naval vessels temporarily at the navy-yard, including those of the Fish Commission and Coast Survey; officers of the Navy and Marine Corps on special duty, and those on the retired list residing in Washington, D. C., who are also entitled to treatment in this hospital.			

REPORT

OF THE

COMMANDANT OF UNITED STATES MARINE CORPS.

HEADQUARTERS U. S. MARINE CORPS,
Washington, D. C., October 1, 1897.

SIR: I have the honor to submit the following report of the condition of the United States Marine Corps for the past year.

Since the date of my last report, I have made a personal inspection of the marine barracks at the navy-yards, Portsmouth, N. H., Boston, Mass., Brooklyn, N. Y., and League Island, Pa., and the naval stations, Newport, R. I., and Port Royal, S. C. It is my intention to visit Norfolk and Annapolis in a short time.

All of them were in a satisfactory condition except Boston and Brooklyn, where repairs are being made. At the first-named station the roof is being raised and electricity introduced in accordance with special appropriations made for these purposes.

At Brooklyn quite extensive repairs are being made under a similar special appropriation, the work being in charge of First Lieut. L. C. Lucas, U. S. M. C., under the immediate direction and supervision of the quartermaster, and in accordance with plans prepared by the latter named officer.

At the naval station, Bremerton, Wash., the erection of barracks and officer's quarters will soon be commenced under the appropriation made by the last Congress, and it is expected will be completed in four months.

At the naval station, Port Royal, S. C., the erection of a building to be used as quarters for the officer stationed there will also soon be commenced. Congress having granted the necessary appropriation at its last session.

The repairs at the Mare Island post under the special appropriation of $1,000 have been completed to the entire satisfaction of the quartermaster, who recently made a visit to that station.

The construction of the officer's quarters at the marine barracks, Sitka, Alaska, for which contract has already been made, has been unfortunately delayed, owing to the fact that the desired site could not be obtained; but it is hoped this difficulty may soon be overcome, and that the work may be proceeded with in a short time.

That the Corps might be well represented in the recent inaugural parade, the Department sanctioned the ordering of detachments of men from the various stations along the Atlantic Coast, so that it was possible to collect in Washington a sufficient number of men to form three small battalions, whose appearance, together with the band, elicited much favorable comment. This force was under the command of Lieut. Col. Robert W. Huntington, U. S. M. C., the battalions being commanded by Majors Robert L. Meade and Charles F. Williams and Capt. E. R. Robinson, U. S. M. C.

Two battalions of marines, and the band of the Corps, which was sent on from Washington for the purpose, under the command of Lieut. Col. John H. Higbee, U. S. M. C., participated in the parade in New York City on the 27th of April last, on the occasion of the dedication of the monument to the late President Grant. One of the battalions was organized at the marine barracks, Brooklyn, N. Y., and under the command of Maj. Charles F. Williams, U. S. M. C., and the other was composed of men landed from ships of the North Atlantic Station, under the command of Capt. Richard Wallach, U. S. M. C.

On the occasion of the unveiling in Philadelphia, Pa., on May 15 last, of the monument erected by the Society of the Cincinnati to the memory of General Washington, a small battalion of marines, composed of men from the battle ship *Texas* and the marine barracks, League Island, Pa., under command of Capt. B. R. Russell, U. S. M. C., took part in the parade, being headed by the band of the Corps.

During the year great attention has been paid to target practice, both at long range and in the gallery, and the most satisfactory results have been obtained, due to the careful and thorough instruction given by the officers who were detailed to superintend it. Under the instructions relative thereto, approved by the Department, it has been possible for the enlisted men at several of the stations to complete the required amount of this practice to enable them to be awarded marksmen's and sharpshooters' badges, and the other posts will soon follow in this particular.

In May last detachments from the two posts in Washington went into camp at the rifle range of the District National Guard, in order that they might complete the long-range practice. They remained there over three weeks, and at the end of that time 40 of these men had qualified as sharpshooters and 68 as marksmen out of a total force of 113, which shows the great advantage derived from the preliminary practice in galleries, which have been erected during the year at all posts except Sitka and Puget Sound.

At the present time the enlisted men from the marine barracks, Brooklyn, N. Y., who have qualified in the gallery, are in camp on the Creedmoor range completing the long-distance practice which will entitle those who make the necessary percentage to badges as sharpshooters and marksmen.

The adjutant and inspector of the Corps, Maj. George C. Reid, and the inspector of rifle practice, Capt. Mancil C. Goodrell, U. S. M. C., have both given a great deal of time and attention to this subject and have materially aided me in bringing about the excellent results that have been attained. It is my opinion that all officers are impressed with the importance of this necessary element in the soldier's education, and are giving it the attention it deserves.

I append a copy of the "Special instructions relative to target firing in the United States Marine Corps," issued from these headquarters on December 12, 1896, which it is requested may also be made a part of my report.

All this target practice has been conducted with the old Springfield .45-caliber rifles, and although the Corps is now armed with the new Navy 6 mm. rifles, it has been impossible to have any target firing with these modern arms in view of the fact that the limited appropriation from which ammunition is purchased will not, at present, admit of a sufficient quantity being procured for this purpose, its cost being double that of the old ammunition. Estimates have been submitted this year for an increase of appropriation under the head of "Military stores," in order that enough of this ammunition can be obtained to conduct target practice during the coming year, and thus enable the men to become familiar with the rifles with which they are armed. The importance of allowing this increased appropriation is apparent, and the quartermaster and I have both referred to it in our letters inclosing the estimates.

In accordance with the Department's orders, 1,800 of these new rifles were turned over by the Bureau of Ordnance, United States Navy, to the Marine Corps for use of the enlisted men serving on shore, while those marines who are attached to ships of the Navy are supplied with arms from the ordnance outfit of the vessel. According to this system, guards transferred to and from vessels are marched on board and on shore without arms and equipments, a proceeding which is not at all military, and, in my opinion, should be changed. It would seem an easy matter for the Navy to turn over to the Marine Corps 1,500 additional rifles and accompanying equipments for the use of the entire enlisted force, which would enable detachments going to and from ships to be armed at all times, as has always been customary in the past.

The Department recently directed the reestablishment of the garrison of marines at the navy-yard, Pensacola, Fla., and all the necessary arrangements have been completed to install it as soon as the prevailing epidemic of yellow fever in the South has abated, the orders for the transfer of the men having been suspended on that account. The strength of this garrison, for the present, will be 1 officer and 29 enlisted men, these being all that can be spared at this time.

In accordance with the Department's orders, the Bureau of Yards and Docks has had prepared quarters for this detachment in an excellent manner in the upper floor of a two-story building belonging to the Navy, it being considered by the medical officers of the Navy unhealthy for the men to live in the old barracks belonging to the Marine Corps, which is one story in height with the sleeping quarters only a few feet above the ground.

In spite of the fact that the Corps was increased by 500 men only two years ago, it has been found by experience that the total numbers authorized are not sufficient to perform the required duties ashore and afloat, and the necessity is daily apparent for additional men. At the present time nearly the whole number of men allowed by current appropriation is in service, and yet the guard duty on shore is practically the same as it was before the increase was made. At few stations do the men have two days off guard, and at many the rule is "day on and day off," a condition of affairs which should not exist. Nearly 300 additional men are needed at the various shore stations to perform the required duty. These figures are based on the reports of the commandants of the various stations submitted two years ago, allowing only two days off guard, and with the addition in the near future of an increase in the fleet, almost as many more will be needed for service afloat. Section 1596 of the Revised Statutes, which has never been repealed, provides for 3,073 enlisted men, while the present strength, as authorized by appropriation, is 2,600, thus leaving a balance due the Corps of 473 privates.

Since the above figures were furnished there have been two additional shore stations established, viz, Bremerton, Wash., and Pensacola, Fla., and a large increase has been made in the number of ships in commission, and also increases in the guards of ships already in commission. The Navy has found the need for additional seamen to man the ships, and it is understood that steps are being taken toward securing the necessary authority from Congress for their enlistment. The same need for these men for the Navy exists in the Marine Corps, in order that the necessary guards may be furnished for these vessels, and still leave sufficient numbers to protect the vast amount of Government property at the various navy-yards, and it is hoped the Department will, therefore, approve the additional estimates which are submitted herewith for these men and add them to the regular ones forwarded last month, when the same are transmitted to the Secretary of the Treasury.

The following is an extract from my report of last year, inviting attention to the necessity for additional officers, the present number being totally inadequate for the performance of necessary duties. The facts presented therein have changed but little during the year, and I can not too strongly urge upon the Department the necessity for this increase of numbers and rearrangement of grades in order to efficiently keep up the organization of the Corps and provide sufficient numbers for the enlisted strength:

> The duty the officers of the Marine Corps are now performing, in my opinion, requires an immediate increase in numbers, there being at the present time only 40 available for shore duty divided among 12 stations. Deducting from this number one on waiting orders and one on detached service, there remain but 38, including commanding officers, for duty, or less than three to a station, which is practically "day on and day off" duty, and this number is even still further reduced by the usual percentage of sick and those detailed for service on boards, courts, etc., which generally relieves them from officer-of-the-day's duty. This fact necessarily makes the duty very severe and confining.
>
> The enlisted men now are enjoying two days' relief from guard duty, and it is unfair to require officers to perform more arduous duties than their subordinates in the service. In a short time there will be 10 captains at sea, which, with the 20 in the Corps, just permits of a relief; but, as there are only 12 second lieutenants allowed, it will be seen that there is not anything like a relief for them with 10 at sea. Each captain on board ship should have a second lieutenant with him, and on the battle ships and large cruisers with guards of 60 men, there ought to be two junior officers—a first and a second lieutenant—to complete the organization, but with present strength they can not be ordered. Nor is it fair when only one junior officer is detailed on a flag or battle ship to send a first lieutenant except in the cases of those who are promoted from second lieutenant while at sea, in which event they should complete their cruise, as ordinarily with present numbers first lieutenants are entitled by their rank to the command of a guard.
>
> There should be a rearrangement of the grades, increasing the captains and second lieutenants and reducing the first lieutenants.
>
> The field officers' grades should also be rearranged, in order to have officers of suitable rank in command of the different posts, rather than diverting captains from their duties as company officers without any increase of pay. Such an arrangement would also give promotion to some of the senior captains whose cases are deserving of the highest consideration. These men are veterans of the late war, and are performing the same duties at 54 years of age that they did over thirty years ago, and the senior, Captain Williams, has no hope of promotion to major for four years, in the ordinary course of events, when he will be 58 years old, and after a service of thirty-eight years, twenty-four of which in his present grade.
>
> The second officer on the list, Captain Cochrane, will not be promoted to major until 1902, at 60 years of age and with forty-one years' service, twenty-three of which in his present grade. The third, fourth, and fifth captains will be 59, 60, and 61 years of age, respectively, when promoted to major, and all of them will have over forty years' service.
>
> This stagnation is discouraging to good officers and naturally affects the efficiency of the service.
>
> In the Navy at present officers are promoted to lieutenant-commander, the corresponding rank with major, even with their unwholesome stagnation, at an average age of 46 years, admittedly too old for the best usefulness, but better than these old captains of marines, who are still obliged to go to sea and perform duty side by side with men much their juniors in years, though seniors in rank.
>
> These facts have all been stated before and present the strongest argument for the enactment of the legislation proposed in House bill No. 4143, introduced with the

> Department's sanction at the last session of Congress, and which, it is hoped, may not be longer delayed.
>
> Our officers are to-day performing harder duty than those in either the Army or the Navy, and are honestly entitled to relief.
>
> The same bill provides for the rank of brigadier-general for the commandant, which it is thought is most appropriate for a command of 2,600 men, besides placing him on an equality in this respect with the corresponding rank held by heads of departments in the Army and bureaus in the Navy.

In order that the officers and noncommissioned officers at all posts may be relieved from duties which are properly within the sphere of and should be performed by men specially designated by rank, such as quartermaster and commissary sergeants in the Army, I earnestly renew my recommendation for legislation for the enlistment of 16 quartermaster sergeants for the Marine Corps, to be appointed and paid like the one already in the Corps. These men would be detailed at all posts and in the offices of the two assistant quartermasters.

In this connection I beg leave to quote from my report of 1891 (page 4):

> I am constrained to recommend that, in any legislation that may be had for the Corps, appropriations be made for 12 quartermaster-sergeants, being one for each post and one at the offices of the quartermaster at headquarters and the assistant quartermaster at Philadelphia, Pa. The small increase of pay these sergeants would receive, and the holding out to them as a reward for faithful service of positions of this character, would prove a great incentive for men to remain in the service. At all Army posts a quartermaster or commissary sergeant is deemed necessary, and at posts in the Marine Corps their services would be of as much importance. Few opportunities exist in the Corps whereby the honest and faithful services of the old noncommissioned officers can be rewarded, and in view of the fact that at the different posts the commanding officers are called upon to perform the duties properly coming under the charge of a quartermaster or commissary sergeant, it seems very proper that some means should be afforded whereby they can be relieved from this class of duties.

The increase from 12 to 16 is due to the establishment since then of four new posts, viz: Newport, R. I., Port Royal, S. C., Bremerton, Wash., and Pensacola, Fla.

During the summer of 1896 the guard intended for the cruiser *Brooklyn* was assembled at the marine barracks, Newport, R. I., where it was thoroughly drilled and instructed together as a body by the commanding officer of that post. By this plan when the ship was placed in commission it was possible to transfer the guard intact on board; the men had become accustomed to each other, and all discordant elements had been weeded out. It was the first time for many years that this method could be followed, owing to the limited strength of the Corps, and results have shown the wisdom of this course, as reports of the most satisfactory character have been received from the ship regarding these men. The Department, upon becoming aware of the above, expressed its disapproval to the Colonel Commandant of assembling this guard at Newport, for the reason that the island there is devoted to but two purposes, namely, the training school for apprentices and the War College, the station itself being under charge of the Bureau of Navigation, and further stated that the Department has never given authority for using this station for any other purposes than those to which it is put, and had no wish to establish there a school of instruction for the Marine Corps.

The reason why Newport was selected for the assembling of this guard was owing to the fact that the facilities there were considered better than those existing at any other post in the Corps on account of its healthy climate and close proximity to the water, where exercise in boats could be readily pursued and target practice frequently indulged in on the long distance range there.

It was not intended to establish a permanent school of instruction for the marines, nor was it supposed that the attachment of these men for the *Brooklyn*, at Newport, would interfere with the Naval Training School or the War College.

I am more convinced than ever that the station at Newport is a most excellent one in all respects for the seggregation of a detachment of marines intended for a particular ship when such ship is to go into commission at one of the navy-yards north of League Island, Pa., but under existing instructions from the Department it is impossible for me to again carry out the plan pursued in the case of the *Brooklyn*, and it is, therefore, recommended that the Department will reconsider its decision in this matter and authorize Newport to be used for this purpose in case it should be deemed necessary or advisable.

Prior to the placing of the battle ship *Iowa* in commission her guard was assembled at the marine barracks, Washington, D. C., where it was thoroughly drilled and instructed under the officers who were to accompany it on board, and in that case excellent results have also been obtained, although the facilities for boat exercise and target firing from boats were lacking.

During the past year good-conduct medals of appropriate design have been awarded, under article 930, United States Navy Regulations, 1896, to such enlisted men recommended therefor by a board of officers ordered in accordance with Special Order No. 49, Navy Department, July 20, 1896. This action has resulted in much satisfaction among the enlisted men, who wear these medals with great pride.

In accordance with a promise made in May, 1893, the Bureau of Ordnance, United States Navy, a few months since, loaned to the School of Application two 6-pounder rapid-fire guns, with mounts, which are now in position here, and at which the classes of officers and enlisted men are regularly instructed. If the other sixteen of these guns, promised at the above-mentioned date, could be also loaned for use at other stations, it would be of great benefit to the Corps, as it would enable the men to be prepared in their use before going on board ship, the marines generally being assigned to man these rapid-fire guns under article 999, Navy Regulations, 1896.

Since the adoption of the above-mentioned regulation assigning the marines to the guns of the main and secondary batteries on board ship, the most excellent reports have been received of their work in target firing, and the assertion is confidently made that the efficiency of all ships where this system is in operation has been materially increased.

The system under which officers of the Marine Corps have heretofore been examined for promotion has recently been changed to correspond with the modifications made in the Army, the law providing for such examinations specifying that they shall be similar to the method pursued in the Army.

I inclose the report of the commanding officer of the School of Application of the proceedings thereof for the year ending June 30, 1897, together with the report of the Board of Visitors at the closing exercises of the school, both of which it is requested may be attached to and made a part of this report.

In accordance with the authority of the Department, First Lieut. Lincoln Karmany and Second Lieut. Melville J. Shaw were ordered to the ordnance shops at the navy-yard, District of Columbia, for the supplemental course of instruction in ordnance for one month, upon the completion of which duty Lieutenant Karmany was detached and ordered to command the marine guard of the U. S. S. *Iowa*, and Lieutenant Shaw to the War College in order to take the course there.

Attention is invited to the fact that the Navy Regulations fail to provide for a salute for the Commandant of the Marine Corps when he visits navy-yards, stations, or ships in commission on public duty. In accordance with the Department's circular to navy-yards of June 3, 1879, the Commandant of the Marine Corps was, up to 1893, accorded the same salute as given to chiefs of bureaus of the Navy Department, and it seems certainly due to his position as the head of one of the coordinate branches of the military establishment of the Government that he should be received, when making his official visits, with the same honors that are paid to a chief of Bureau, who holds relative rank and occupies a temporary position, and I earnestly recommend that the Navy Regulations be so amended that this salute shall be provided for and given as heretofore.

In order to encourage the enlisted men to save their money, that they may have a little sum to start with should they desire to leave the service at the expiration of their enlistment, I recommend that the act of Congress approved February 9, 1889, entitled "An act to provide for the deposits of the savings of seamen of the United States Navy," be made applicable to the Marine Corps, and that the necessary legislation be enacted to accomplish this end.

The vacancy of second lieutenant which existed at the date of my last report was still further increased by three casualties during the year, but at the graduation of the class at the Naval Academy in June last it was only possible, owing to the small class, to assign two cadets to the Marine Corps, which still leaves two vacancies. These officers are very much needed and it is most unfortunate that they could not be obtained. The two who were appointed, Lieuts. P. M. Bannon and Newt H. Hall, are now undergoing instruction at the School of Application, together with First Lieut. C. A. Doyen, the second in his grade.

The following casualties have occurred since the date of my last report: Retired: Lieut. Col. McLane Tilton, February 1, 1897; Maj. and Quartermaster Horatio B. Lowry, June 19, 1897, and Maj. and Quartermaster Richard S. Collum, June 26, 1897. All these officers were retired on their own application, having served over thirty years. First Lieut. Elisha Theall was retired February 2, 1897, having failed to pass the physical examination for promotion to the rank with which he was retired. Deaths: Col. Clement D. Hebb (retired), June 23, 1897; Lieut. Col. George P. Houston (retired), February 7, 1897, and Capt. H. H. Coston (retired), November 6, 1896.

Upon the retirement of Maj. H. B. Lowry, Capt. and Asst. Quartermaster R. S. Collum was promoted major and quartermaster, but served as such only a few days, when he was retired on his own application. Capt. and Asst. Quartermaster Frank L. Denny was then promoted major and quartermaster and is now performing his duties as such at these headquarters. First Lieut. Thomas C. Prince was appointed captain and assistant quartermaster June 20, 1897, to fill the senior vacancy in that grade and is now on duty at Philadelphia, Pa. The junior vacancy of captain and assistant quartermaster was filled by the appointment of Mr. Charles L. McCawley, a son of the late Commandant, who, for the past 16 years, has been chief clerk in the office of the Commandant of the Corps.

There have been since my last report 1,069 casualties in the enlisted strength caused by discharges, desertions, deaths, and retirements, and in the same time there have been 1,152 enlistments and reenlistments.

The recruiting regulations now provide for the acceptance only of citizens of the United States or those who have legally declared their intention to become such. All recruiting officers have orders to select only the most desirable men, and an excellent class is thus being obtained. There are now 487 aliens in the Corps, and of these 246 have declared their intention to become citizens of the United States, 232 live in the United States, but have not declared their intention to become citizens, and only 9 claim foreign residence.

There are 1,406 men on duty at the various shore stations and 1,170 on board ships in commission.

In accordance with the Department's instructions of July 6, 1897, the annual estimates for the support of the Marine Corps for the fiscal year ending June 30, 1899, were forwarded to the Department on September 15, 1897. These were returned on September 25, 1897, with directions to eliminate in those of the quartermaster the item of $50,000 for erection of a marine barracks at the navy-yard, League Island, Pa., which was complied with, and they were again forwarded to the Department on September 28, 1897.

Triplicate copies of the Paymaster's and Quartermaster's estimates, as revised, are inclosed herewith.

In accordance with the Department's instructions, post exchanges have been established at the marine barracks, Annapolis, Md., and League Island, Pa., and at the naval stations, Newport, R. I., Port Royal, S. C., and Bremerton, Wash., and orders have been issued for the establishment of a like institution at the marine barracks, Boston, Mass., on November 1 next.

Reports as to the progress of these post exchanges will be made at the proper time in accordance with the Department's directions.

The Adjutant and Inspector has made inspections in accordance with article 932 (2), Navy Regulations, and reports the discipline and efficiency of the men as most satisfactory and the condition of the buildings as excellent, with the exception of those at Boston and Brooklyn, where repairs are being made.

As the civil force at these headquarters has, by Executive order, been recently placed under civil-service rules, I respectfully recommend a rearrangement of salaries to correspond with those received by clerks in the other departments of the Government performing like duties. The chief clerks of the various offices should be fourth-class clerks and receive the same pay allowed the chief clerks of the various offices in the Departments; and the second and third clerks employed here should be third and second class clerks, respectively. The sums received now by these men are odd in figures, being established many years ago, and are unlike those in any other department.

The civil clerical force here is very small compared to the work to be performed, owing to the employment of enlisted men as clerks and messengers; and in that way a considerable saving annually results to the Government, there being twelve of these soldiers so detailed.

The plan proposed will be an increase of only $1,573.80—about the pay of one additional clerk—and in my judgment will be a fitting reward for deserving men who have at present little chance for advancement, which is discouraging to anyone who efficiently performs his duties.

I also inclose an abstract and schedule of proposals received for furnishing rations, fuel, and other annual supplies for the Marine Corps during the present fiscal year, and it is requested that this may also be made a part of my report.

Very respectfully, your obedient servant,

CHARLES HEYWOOD,
Colonel Commandant.

The SECRETARY OF THE NAVY.

REPORT OF SCHOOL OF APPLICATION.

HEADQUARTERS SCHOOL OF APPLICATION,
UNITED STATES MARINE CORPS,
Marine Barracks, Washington, D. C., July 8, 1897.

SIR: I have the honor to submit the following report of the proceedings of the School of Application for the year ending June 30, 1897.

The school was formally opened on September 8, 1896, and consisted of commissioned officers: First Lieut. Lincoln Karmany and Second Lieut. Melville J. Shaw; and enlisted men—2 sergeants, 7 corporals and 15 privates.

First Lieut. J. H. Pendleton was detailed as assistant instructor and had charge of the classes of the enlisted men's division and continued on that duty until October 9, when he was detached and ordered to Brooklyn, N. Y., for duty. Lieut. L. J. Magill reported the same day from the Naval War College, Newport, R. I., and was assigned to the duties just relinquished by Lieutenant Pendleton. Lieut. M. J. Shaw was invalided to the Naval Hospital, Washington, D. C., on November 4, 1896, and reported for duty again on January 5, 1897.

During the scholastic year there were numerous changes in the enlisted men's division owing to exigencies of the service as follows: 4 sergeants, 3 corporals, and 2 privates joined, and 2 sergeants and 9 privates were detached. Several promotions to the noncommissioned grade were also conferred, which left the graduating class of enlisted men as follows: 6 sergeants, 12 corporals, and 4 privates.

Owing to demands made upon the commissioned officers attached to the school, detailing them on boards, courts-martial, etc., twenty-six days were lost; yet, notwithstanding this, in their final examinations they showed a degree of proficiency that was commendable in the extreme.

By order of the Colonel Commandant instruction on the subject of spar torpedoes was eliminated from the course as obsolete.

During the year theoretical instructions were carried on in the class rooms twice daily, excepting Saturdays, when but one recitation was held. Every advantage was taken in fair weather to teach the officers and men in their practical duties, by practice marches into the surrounding country where they were enabled to learn to pitch tents and break camp, exercise a company in attack and defence, scouting and reconnoitering duty, and signaling. Owing to the paucity of commissioned officers the noncommissioned officers frequently acted as company officers, and showed marked ability and zeal. In signals the men have transmitted messages about 4 miles to the barracks, the messages received being telegraphed into the office at these headquarters.

A field telegraph, mounted, with all the appliances for service, has been constructed here for the use of the school and the classes thoroughly instructed in its use. For practical instruction in topography field sketching cases, mathematical instruments, boxes of colors, and drawing and tracing paper have been supplied.

The topographical work done included sketches, to a scale, of sections of the surrounding country, which were remarkable as to technique and accuracy. The instruction in duties on board ship was very thorough and exhaustive.

For small-arm firing practice a rifle gallery has been built, and the officers and men thoroughly and carefully instructed during the winter months; while in the month of May opportunity was offered for long-range firing, with the result that 1 second lieutenant, 1 sergeant-major, 3 sergeants, 5 corporals, and 9 privates qualified as sharpshooters at the 200, 300, 500, and 600 yards ranges, and 4 corporals and 25 privates as marksmen.

For artillery instruction we have now mounted one 6-pounder Hotchkiss and one 6-pounder Driggs-Schroeder R. F. guns of modern pattern.

Medical Inspector J. C. Wise, U. S. N., on my invitation, instructed the officers and men in practical work of aid to the wounded.

In addition for field service we have the new army field oven which has been practically tested by the men who were in camp for three weeks.

I would respectfully urge that 20 wall tents and flies complete be furnished for the use of the school, and that the officers and men spend at least one month each year in camp. By this means practical instruction may be given in all tactical exercises and the theoretical instructions applied to actual service in the field. I consider this most important.

With reference to the text-books now on hand, I would respectfully state that they are old editions and should be replaced, and I would also request that Root's Military Topography and Sketching be substituted for Richard's work on the same subject, as being more modern and better adapted for the school.

A new rifle having been substituted for the Springfield rifle, caliber .45, I recommend that the Springfield rifle pamphlet be dropped as a text-book.

Sleeman's Torpedoes and Torpedo Warfare is not up to the requirements, and the want of any facilities for practical work in this direction impels me to recommend that this study be eliminated from the course, and in lieu thereof that the officers may be ordered for instruction in these branches to the torpedo station at Newport, R. I.

I would respectfully urge that the greatest care be exercised by the commanding officers at the various stations in selecting the men to be sent to the school.

The programme of studies pursued is appended, marked "A" and the order of exercises attending the graduation of the classes appended marked "B." Authority having been granted the course was extended by sending Lieutenants Karmany and Shaw for instruction in ordnance, to the naval station, Washington, D. C., for the month of May, 1897.

At the expiration of this period Lieutenant Karmany was detached and ordered to command the guard of the U. S. S. *Iowa*, and Lieutenant Shaw was ordered to a four months' course at the Naval War College, Newport, R. I.

Very respectfully, your obedient servant,

F. H. HARRINGTON,
Captain, United States Marine Corps,
Commanding Marines and in Charge of Instruction.

The COLONEL COMMANDANT, UNITED STATES MARINE CORPS,
Washington, D. C.

A.

OFFICERS' DIVISION.

Department.	Subject.
Infantry	Instructions for Infantry, United States Navy.
	Manual of Guard Duty.
	Blunt's Small-Arms Firing Regulations.
	Springfield rifle pamphlet.
	Batchelor's Infantry Fire in Battle.
Artillery	Instructions for Artillery, United States Navy.
	Instructions for Gatling Gun Drill.
	Radford's Gunnery Catechism.
	Drill Book for the New Armaments, United States Navy.
Administration and sea service	Accountability Instruction.
	Duties of Marines Embarked.
	United States Navy Regulations.
	United States Army Regulations.
	Recruiting pamphlet.
Law	Winthrop's Military Law and Courts-Martial.
	United States Navy Regulations.
	Administration of Law and Justice, United States Navy.
Torpedoes	Sleeman's Torpedoes and Torpedo Warfare.
	Notes on Submarine Mining.
	Catechism of Explosives, United States Navy.
Engineering	Hutchison's Field Engineering.
	Richard's Military Topography.
	Signaling and Telegraphy.
	Hygiene (lectures).
Military art	Shaw's Modern Tactics.
	Hamley's Operations of War.
	Troops in Campaign.

ENLISTED MEN'S DIVISION.

Infantry	Instructions for Infantry, United States Navy.
	Manual of Guard Duty.
	Blunt's Small Arms Firing Regulations.
	Batchelor's Infantry Fire in Battle.
	Springfield rifle pamphlet.
Artillery	Instructions for Artillery, United States Navy.
	Instructions for Gatling Gun Drill.
	Radford's Handbook of Naval Gunnery.
Administration and sea service	Accountability Instruction.
	Duties of Marines Embarked.
	Recruiting pamphlet.
Torpedoes	Notes on Submarine Mining.
	Catechism of Explosives, United States Navy.
Field engineering	Notes on Elementary Field Engineering.
	Signaling and Telegraphy.
Field service	Notes on Minor Tactics.

B.

GRADUATING EXERCISES.

THEORETICAL.

Examination of classes, class papers, maps, etc., in section rooms.

PRACTICAL.

Infantry.

School of the squad: Manual of arms; bayonet exercise.

School of the company: Close-order movements; street-riot formation; extended-order drill.

School of the battalion: Close-order movements.

Signals.

Transmission and receipt of messages from various points, by flag and telegraph.

Artillery.

Inspection of battery.

Ceremonies.

Review and dress parade.

REPORT BOARD OF VISITORS SCHOOL OF APPLICATION.

WASHINGTON, D. C., *May 4, 1897.*

SIR: By your direction we, the undersigned, met at the Marine Barracks, Washington, D. C., on the 3d instant, to witness the closing exercises and final examination of officers and noncommissioned officers at the School of Application of the class formed September 1, 1896.

The Board examined the papers of the student officers that had been written at the examinations held previously to graduation, and were most favorably impressed by the proficiency shown by the class.

The Board then proceeded to witness the practical exercises upon the parade ground, the execution of which was highly creditable to both officers and enlisted men.

The practical work of the school for the past year has been more varied and extensive than in any previous year, the results of which were manifest to the Board, all of whom have served on previous boards.

The facilities for exercises in application are extremely limited, but these exercises can be extended with the means at hand to include under the course of "Military art," "Exercises in application," to consist of tactical exercises with troops, tactical exercises without troops, and the preparation of essays on military topics other than those included in the course of instruction in "Strategy."

The exercises with troops should consist of marches, outpost, advance guard, rear guard, screening and reconnoitering duty, and the selection and occupation and the defense and attack of positions.

The tactical exercises without troops should consist of: Field-service exercises, in which the student officers will accompany the instructor in a ride over the country in the vicinity of Washington, noting the military features of the terrain, selecting positions, drawing up plans for attack and defense by any assumed number of troops, and writing out the orders necessary in the assumed case.

A topographical sketch of the terrain considered and the orders issued will be submitted by each student officer after each exercise.

Maneuvers on the map. In these maneuvers the forces will be indicated on a suitable map. The students will be required to write out the orders for all movements that they direct, and at the conclusion write out a report, the same as though the operations had taken place.

Each student should be required to write a graduating essay upon any suitable military topic that he may select, subject to the approval of the commanding officer.

Shaw's Minor Tactics, being an English work and not fully adapted in all respects to the use of military schools in the United States, should be replaced by Wagner's Organization and Tactics and The Service of Security and Information. These books are up to date and are used at all the military schools of the country; also that Von der Goltz's Conduct of War be added to the list of books under this head.

In the course of engineering it is recommended that Root's Military Topography and Sketching and Beach's Manual of Military Field Engineering be substituted for Richards's Military Topography and Hutchinson's Field Engineering.

Exercises in application should embrace the actual construction of rifle pits, shelter trenches, obstacles, etc., as well as the locating of trenches with reference to the configuration of the ground. Field works and field engineering are a necessary part of this course.

The course of law should be extended to include constitutional and international law.

The Board are of the opinion that exercises in application should go hand in hand with theoretical instruction, and when this is impossible owing to a lack of facilities, such studies should be omitted.

The course in torpedoes and submarine mining is not taught at any of the line schools in the United States, and at the staff schools only when every facility is at hand for exercises in application. It is therefore recommended that, as there are no facilities for the proper instruction of officers and enlisted men in this course, it be dropped from the curriculum and that officers be sent to the Torpedo School at Newport, R. I.

It is recommended that an officer with experience ashore and afloat be detailed to instruct the enlisted men's class, as questions are constantly asked by the men that can only be answered by one having experience.

It is further recommended that greater care be exercised in the selection of men sent to the school, as four of those coming from other stations last year were found entirely unfit to take the course and were relieved at the request of the instructor.

As an incentive to faithful study and hard work, it is recommended that the enlisted men's class be promoted, according to proficiency, as soon as practicable after the close of the term.

In order that the purpose for which the school was established may be fully realized, it is necessary that the commanding officer should have sufficient funds to supply the school with the latest books and instruments and to provide facilities for exercises in application, also to found a sound military library, a most necessary part of a well-equipped school.

E. R. Robinson,
Captain, United States Marine Corps.
M. C. Goodrell,
Captain, United States Marine Corps.
F. L. Denny,
Captain and Assistant Quartermaster, United States Marine Corps.

The Colonel Commandant United States Marine Corps,
Headquarters.

SPECIAL INSTRUCTIONS TO POSTS.

Headquarters United States Marine Corps,
Washington, D. C., December 12, 1896.

(1) As the subject of rifle firing is of the utmost importance to the Marine Corps, it is desirable that no effort or pains shall be spared by the commanding officers and other officers at the different stations to advance the qualifications of their commands in this respect; and to the end that a thorough and uniform system of instruction shall be pursued at all stations, immediate steps will be taken by such commanding officers to secure, without delay, the necessary facilities, including gallery and long-distance ranges, for carrying into effect the requirements of Special Order No. 48, Navy Department, July 20, 1896.

(2) It is necessary for fair and intelligent classification and reward of merit throughout the Corps that competition should be conducted under, as nearly as possible, like conditions, and it is therefore important that gallery practice should be upon ranges of the same distance and from like positions, standing, sitting, or kneeling, and lying down.

(3) All that is required in Small-Arms Firing Regulations, as modified by Special Order, No. 48, Navy Department, and the provisions of this order, will be carefully and diligently carried out where practicable. At stations where the facilities for target practice do not admit of firing at all the distances necessary to qualify a person for classification as sharpshooter, marksman, and first and second classes, anyone attaining 80 per cent in his best four full scores in the gallery, and 80 per cent in his best four full scores on the range at all the distances available of and above 200 yards will, the exigencies of the service permitting, be transferred to a station that will afford him the facilities for qualifying for classification.

(4) Skirmish firing at stations, where the same is practicable, as required by the Small-Arms Firing Regulations, shall be had, but it shall not be necessary to classification, and all men making the required percentage both in the gallery and on the range shall be entitled to classification the same as if skirmish firing were included.

(5) No man shall be permitted to fire on the range until he has had a thorough course of instruction in the preliminary drills, and has attained an average of 80 per cent in his best two full scores in gallery practice.

(6) A man having attained the required percentage in gallery practice to enable him to fire on the range, will be required to fire, during the practice season, an aggregate not exceeding 160 shots, unless he has attained an average of 80 per cent with a less number of shots at all distances available at his station, from 200 yards to 600 yards, inclusive.

(7) Any man who desires may, in the discretion of the commanding officer, be allowed more than the prescribed amount of target practice on the range for the purpose of acquiring classification, and for such purpose may purchase the ammunition necessary from the officer in charge, at cost price.

(8) *Score cards.*—At each regular practice the commanding officer of each detachment participating will furnish to the officer in charge of the party engaged in the practice a score card inscribed with the names of the officers and men present. At the close of the practice the officer in charge will return the score cards to the commanding officer with the score of each officer and enlisted man thereon in ink, or with an indelible pencil, and certified to by him.

(9) *Target record book.*—This book will give the individual record of every officer and enlisted man attached to the post. It will be made by transcribing from the certified score cards the record of each man at every regular practice.

(10) *Monthly report.*—This report will be made on the last day of each month, as per Form A. It will contain the name of every officer and enlisted man who has been borne on the rolls of the post during the month, and will give the totals of the two best full scores in the gallery and the two best full scores on the range of each officer and enlisted man at all distances available, from 200 to 600 yards, inclusive. It will be accompanied by the certified score cards as vouchers.

(11) In order that the extent of instruction and the relative proficiency of the different stations may be accurately known, an annual report of all practice, in the gallery and on the range, will be made as per Form B at the close of the practice season—October 31 of each year. This report will show the total number of men firing each month and the average per cent of scores at the different ranges. The classification of all men for each month will also be shown, and from these reports will be compiled and published annually the relative standing of proficiency in target firing of the different stations, at the distances fired.

(12) *Classification.*—The class in firing to which any officer or enlisted man belongs will be determined at the end of the practice year from the aggregate of the total of the two best full scores he has made on the range. But if discharged or transferred, or if he has completed his course before leaving the post, he will be classified according to the aggregate obtained. Whenever a man is transferred or discharged, the record of his best two full scores on the range shall be entered under "Remarks" on his descriptive list, these scores to be credited to him in subsequent practice for classification.

(13) *Sharpshooters.*—All who have fired two or more full scores in the gallery and two or more full scores on the range, and, from the best two of each, have made an aggregate of not less than 80 per cent.

(14) *Marksmen.*—All men who have fired two or more full scores in the gallery and two or more full scores on the range, and, from the best two of each, have made an aggregate of not less than 65 per cent.

(15) *First class.*—All who have fired two or more full scores in the gallery and two or more full scores on the range, and, from the best two of each, have made an aggregate of not less than 50 per cent.

(16) *Second class.*—All who have two or more full scores in the gallery and two or more full scores on the range, and, from the best two of each, have made an aggregate of not less than 35 per cent.

(17) *Third class.*—All who have failed to fire two full scores in the gallery and two full scores on the range, or, having shot such scores, have made an aggregate of less than 35 per cent.

(18) Blank forms for score cards and reports of target practice will be furnished by the Adjutant and Inspector, United States Marine Corps.

CHARLES HEYWOOD, *Colonel Commandant.*

Approved:
W. MCADOO, *Assistant Secretary.*

No. 166.]

HEADQUARTERS UNITED STATES MARINE CORPS,
Washington, D. C., September 15, 1897.

SIR: In compliance with the Department's instructions of July 6, 1897, I have the honor to submit, for its approval, the annual estimate for the support of the Marine Corps for the fiscal year ending June 30, 1899.

The paymaster and quartermaster, United States Marine Corps, transmit letters with their estimates explaining them in detail, and stating the reasons for the increase in some of the items, and these letters are inclosed for the information of the Department.

For several years past the full amount necessary for the pay of the total number of enlisted men allowed the Marine Corps has not been appropriated for annually, the Department a few years past having arbitrarily reduced the total sum, for the reason that at that time the whole number of men allowed was not constantly in service, and it was thought the appropriation could stand the reduction. This reasoning held good for a year or two and the amount of money appropriated was sufficient, but since then it has been an easy matter to keep the Corps up to its authorized strength at all times, and the requirements of the service demand that this should be done, and in consequence there has not been enough money to pay all the men the last year, and the paymaster reports a deficiency amounting to over $32,000, and further states that this sum will be increased for the current year.

As an additional reason why more money should be appropriated, it may be stated that in accordance with the acts of Congress approved February 12, 1895, and March 16, 1896, no pay is any longer retained from the enlisted men, and all now receive the full amount to which they are entitled by law.

Those men from whose pay was retained the $4 per month provided for in the act approved June 16, 1890, who are now being discharged upon expiration of enlistment, are receiving the total sum retained from their pay, together with accrued interest, and these payments make further drain upon the appropriation "Pay Marine Corps."

In my opinion, the increase asked for by the paymaster is a conservative one, and should be allowed in order to prevent further deficiencies.

The quartermaster's estimates show increases under the items "Clothing," "Military stores," "Repair of barracks," "Hire of quarters," and "Contingent," the necessity for which he fully explains in his accompanying letter. A decrease is proposed under the head of "Provisions," while the other items of his appropriation remain as heretofore.

The necessity for a modern and suitable barracks at the navy-yard, League Island, Pa., has been apparent for a number of years, and its construction should no longer be delayed. The present barracks is a small frame temporary structure, which is entirely unsuitable for the purpose for which it is used, and is much too small for the number of men required at this fast-growing and important navy-yard, where the Department is now placing all vessels "in reserve." By my direction the quartermaster has, therefore, included in his estimates an item of $50,000 for the erection of this barracks, a site therefor having recently been assigned to the Marine Corps by the Navy Department, and it is earnestly hoped that this estimate will meet with the Department's approval.

Under "Military stores" more money is needed with which to purchase ammunition for the new 6 mm. rifles with which the Corps has been recently armed, and the necessity for obtaining this ammunition is so apparent and so urgent that no comment, other than the reference to the quartermaster's letter on the subject, seems necessary.

It has become necessary to materially improve the lighting arrangements at the marine barracks and officer's quarters at Portsmouth, N. H., and the marine barracks, Norfolk, Va., owing to the poor and insufficient quality of gas now used at both of these stations, and it is thought to be desirable, as well as a matter of economy, to install electricity at these stations rather than to extensively repair the present system of gas, as after the first expense of installation the cost for maintenance will be considerably less than at present for the payment of gas bills. The proposed estimates for this electric light at the two posts only aggregate $2,000, and it is hoped this will be allowed.

Small increases under "Hire of quarters" to provide for this allowance to enlisted men detailed as messengers, and the small sum of $1,500 to make repairs and improvements at the marine barracks, Annapolis, Md., in accordance with the recommendations of boards of survey on file in the quartermaster's office, both of which are fully explained by the quartermaster, are submitted under the heads of "Hire of quarters" and "Repair of barracks." In this connection I desire to state that hardly any money has been expended on the Annapolis Barracks since its erection, some fifteen years ago, and these repairs are absolutely essential to prevent further deterioration in the building. The small appropriation of $10,000 for "General repairs" at all the posts is not large enough to warrant taking this required sum therefrom.

Two years ago the Marine Corps was increased by 500 men, and more money is necessarily required under the various subheads of the appropriation than was formerly allowed. That the Marine Corps is economically administered there can be no question, and every effort is made on the part of the Colonel Commandant, the paymaster, and the quartermaster to reduce expenditures to the lowest possible limit, and it is hoped the Department will appreciate this fact and see its way clear to approving these estimates as submitted.

Very respectfully, your obedient servant,

CHARLES HEYWOOD, *Colonel Commandant.*

The SECRETARY OF THE NAVY.

HEADQUARTERS UNITED STATES MARINE CORPS,
PAYMASTER'S OFFICE,
Washington, D. C., September 8, 1897.

SIR: I inclose herewith estimates for appropriation Pay Marine Corps for the fiscal year ending June 30, 1899.

These estimates show an increase of $40,526.03 compared with the amount appropriated for current year, as follows:

Pay of officers on the retired list	$337.50
Pay of enlisted men on the active list	39,592.33
Pay of enlisted men on the retired list	596.20
Total increase	40,526.03

As the number of officers and enlisted men on the retired list at the present time is greater than the number heretofore appropriated for, a corresponding increase in the amount estimated as necessary for the ensuing fiscal year has been made.

Owing to changes in laws relating to retention of pay of enlisted men by acts of Congress approved February 12, 1895, and March 16, 1896, the expenditures on account of pay of enlisted men on the active list have been materially increased, and the sum asked for under this head is a very conservative estimate of the amount that will be required. A deficiency, due to this cause, in the appropriation for the fiscal year 1896 amounting to $32,613.07 was reported to and appropriated by Congress at the session recently closed, and from reliable information obtained at the Treasury Department this amount will be further increased when all claims have been received and settled. The demands against the appropriations for the fiscal years 1897 and 1898 are known to be even greater than those against the appropriation for 1896; hence it follows that the deficiencies in the appropriations for those years will be much larger than that reported and appropriated for the year 1896. It will be seen, therefore, that the sum asked for under this head is not excessive.

Very respectfully,

GREEN CLAY GOODLOE,
Major and Paymaster, United States Marine Corps.

The COLONEL COMMANDANT, UNITED STATES MARINE CORPS,
Headquarters, Washington, D. C.

HEADQUARTERS UNITED STATES MARINE CORPS,
QUARTERMASTER'S OFFICE,
Washington, D. C., September 10, 1897.

SIR: Submitted herewith are the annual estimates for the support of the quartermaster's department of the United States Marine Corps for the fiscal year ending June 30, 1899, together with remarks and explanations in relation thereto. There are also submitted some recommendations which are thought to be pertinent and advisable.

The estimates for the next fiscal year aggregate $368,908. This sum is but $34,560 greater than that appropriated by Congress for the current fiscal year, notwithstanding the fact that certain new, but necessary, expenditures are urged. Due regard has been given to public economy in framing the estimates, and only such expenditures as are actually needed have been suggested.

Following is a table giving the general heads under which appropriations for the Corps are made, and the amounts appropriated for this year, together with the estimates for the coming year:

	Appropriation for 1898.	Estimates for 1899.
Provisions	$100,000	$95,000
Clothing	97,255	107,255
Fuel	19,500	19,500
Military stores	13,297	23,297
Transportation and recruiting	15,000	15,000
Repair of barracks	45,600	63,500
Forage	3,000	3,000
Hire of quarters	6,996	7,356
Contingent	33,700	35,000
Total	334,348	368,908

In explanation of the above table the following is to be said:

Provisions.—The new estimates look to a saving under this head of $5,000. This proposed economy is possible, because rations can now be purchased under contracts at slightly less cost than formerly. The saving mentioned is about the difference between the cost of rations for last year and those for this year. It is reasonable to suppose that the contract prices for rations next year will not be greater than the current prices.

Clothing.—An increase of $10,000 is urged under this head as absolutely necessary. The present appropriation is inadequate to properly clothe 2,600 enlisted men now authorized by Congress, as shown by official reports on file in this office. The strictest economy is observed in expending the appropriation, and men are allowed the fewest possible garments during an enlistment. Their allowance is too small to enable them at all times to draw a sufficient amount of clothing, and they are frequently obliged to obtain extra garments, paying for the same out of their meager salaries; a practice that is not contemplated. This department at no time has a reserve supply of uniforms, and should the stock at any post or on board vessels in commission be destroyed by fire, contagion, or otherwise, it would be impossible to replace it without creating a deficiency in the appropriation. That which is purchased with the limited appropriation made available each year is issued promptly after being manufactured, to supply urgent demands ashore and afloat. Annually, every spring and early summer, many requisitions received for clothing can not be filled, owing to the fact that the supply procured under contracts, and with the liveliest competition, is exhausted.

As illustrative of the above, numerous cases could be cited showing administrative embarrassment resulting from a lack of an adequate appropriation. The most recent instance is mentioned: During the past month two small vessels were placed in commission and ordered on foreign service. Requisitions were made upon this Department for a three years' supply of clothing for each ship. Neither the requisitions in full nor any part of them could be filled from a reserve stock which should have been on hand at the office of the assistant quartermaster in Philadelphia, and it was only after a draft upon all the Eastern posts of the Corps that needed clothing could be obtained. Even then, although nine posts were called upon, less than one year's allowance for each vessel could be collected. Some of the posts from which the clothing was drawn were left without articles of uniform which the men were in want of. The importance of this matter is earnestly urged upon the consideration of the Colonel Commandant, and it is hoped that he will approve the proposed increase under this head, as the same is absolutely necessary to meet the actual needs of the Corps.

Repair of barracks.—The chief proposition under this head contemplates the erection at the League Island Navy-Yard of a modern brick barracks, to cost $50,000, and capable of quartering the number of men required for duty at that station. Such a barracks is a public necessity as a substitute for the small, ill-adapted, unsanitary frame structure now used, which is virtually a shed, lacking all the modern comforts and conveniences, and which at the time of its construction was only intended as a temporary structure in which to quarter the men pending the erection of suitable barracks. The present building is old, too cramped for space, without good sanitary arrangements, and is in need of many repairs, which, in view of its condition and unsuitableness as a barracks, it would seem extravagant to make. At no navy-yard in the country are the marines so poorly housed as at the League Island station.

Under this same head estimates are submitted to make repairs and improvements at the marine barracks, Annapolis, Md., at a cost of $1,500. The repairs contemplated are the placing in of new floor beams, new floors, improvements of the heating system, and plumbing, painting, etc., which are much needed to put the building in good condition. A separate appropriation is recommended, for the reason that the general fund of $10,000 is not sufficient to stand this expense, as well as the numerous and various demands upon it from the other thirteen posts of the Corps.

Fuel.—No change in the appropriation under this head is necessary.

Military stores.—An increase of $10,000 is required for the various purposes under this head. The Corps has recently been supplied by the Navy with the 6-mm. Lee magazine rifles, in which a new variety of cartridges, having smokeless powder, must be used. The cost of these cartridges is more than double that of the old .45-caliber ammunition, the price of the same being nearly $37 for a thousand rounds. Even though the present fiscal year has just commenced and the whole appropriation is available, it has been found inexpedient to expend more than the sum necessary for the purchase of only sufficient ammunition for a reserve supply, to be kept at the various stations of the Corps for use in an emergency, and in consequence no target practice with the new rifles can be had at present, and the men are therefore entirely unfamiliar with the use of this arm, except for drill purposes. Target practice is at present conducted with the old Springfield rifle, which is obsolete. To make our men efficient in the use of the new arm, it is absolutely essential that they should have practice in firing the same, and for this purpose an ample supply of ammunition should be obtained. Even the proposed increase of $10,000 will only purchase a little over 200,000 rounds of this new ammunition, a very small quantity, considering service conditions and requirements, but which, with strict economy, will probably answer the purpose for the present.

Hire of quarters.—An increase of $360 is estimated for hereunder to provide for this allowance to enlisted men to be detailed for duty as messengers in the office of the quartermaster and assistant quartermaster at these headquarters, and to pay the same to another man performing similar duty at the office of the assistant quartermaster at Philadelphia, provision for whom was inadvertently omitted last year, though he is receiving all the other allowances paid to other men on the same duty. The work these two additional men will be required to perform is of similar character to that already assigned in the offices here, combining clerical as well as messenger's duties not of a military character, and as the sum to be expended is so much less than that which would have to be paid to civilian employees, the advantage of the plan to the Government can not be questioned. The work in these offices has increased to such an extent as to make it impossible of execution with only the regular civil force, and it has been found necessary to employ the enlisted men as clerks and messengers at rates of pay and allowances established by the Secretary of the Navy. These proposed additional men are absolutely needed promptly and effectually to dispatch the work of the offices mentioned.

Contingent.—Estimates for an increase of $2,000 are submitted in this connection, with which it is proposed to install electric lights in the marine barracks and officers' quarters, Portsmouth, N. H., and the marine barracks, Norfolk, Va. Such improvements are necessary. Reports of boards of survey and other official papers received from Portsmouth state that the gas at that post is inferior in quality and insufficient in quantity. The eyes of the officers and the men of the command have been injured, owing to the dimness of the light now provided, and in winter lamps and candles, which are unsafe in barracks, have been resorted to on many occasions. It has been proposed to improve the present gas plant by adding a separate automatic machine. To do this would cost about as much as putting in electric lights, and the service would be less satisfactory. Besides, electric lights are better, safer, and more economical to maintain. What is said concerning the needs of Portsmouth applies equally to the barracks at Norfolk. There the navy-yard has a plant, and by using this the cost to the Marine Corps to put in the lights will be small, probably not more than $500. There will be a saving in the cost of maintenance, and the expense of installation will thus soon be offset, while the gain to the service will be great.

Very respectfully,

F. L. DENNY,
Major and Quartermaster, United States Marine Corps.

The COLONEL COMMANDANT UNITED STATES MARINE CORPS,
Headquarters.

No. 175.]

HEADQUARTERS UNITED STATES MARINE CORPS,
Washington, D. C., September 28, 1897.

SIR: In accordance with the Department's directions of the 25th instant, I have had altered the Quartermaster's estimates by omitting the submitted request for an appropriation for the erection of a new barracks at the United States Navy-Yard, League Island, Pennsylvania, at an estimated cost of $50,000, and the estimates are herewith returned to the Department.

Very respectfully, your obedient servant,

CHARLES HEYWOOD,
Colonel Commandant.

The SECRETARY OF THE NAVY.

Estimates of appropriations required for the service of the fiscal year ending June 30, 1899, by the paymaster of the United States Marine Corps.

Detailed objects of expenditure, and explanations.		Estimated amount which will be required for each detailed object of expenditure.
PAY OF MARINE CORPS.	(R. S., p. 272, secs. 1596, 1623; acts June 30, 1834, vol. 4, p. 713, secs. 4, 5; Mar. 2, 1847, vol. 9, p. 155, sec. 3; Aug. 5, 1854, vol. 10, p. 586, sec. 1; Feb. 21, 1857, vol. 11, p. 163, sec. 1; July 17, 1862, vol. 12, p. 594, sec. 2; June 30, 1864, vol. 13, p. 144, sec. 1; Mar. 3, 1865, vol. 13, p. 487, sec. 1; July 28, 1866; vol. 14, p. 334, sec. 13; Mar. 2, 1867, vol. 14, p. 422, sec. 1; Mar. 2, 1867, vol. 14, p. 517, sec. 7; July 15, 1870, vol. 16, p. 330, sec. 3; Jan. 30, 1885, vol. 23, pp. 293, 294, sec. 1; Feb. 14, 1885, vol. 23, p. 305, sec. 1; Navy Regulations, July 18, 1816; Feb. 27, 1893, vol. 27, p. 478, sec. 1; June 10, 1896, vol. 29, pp. 375, 376, sec. 1.)	
Pay of 473 additional privates		$73,788.00
Pay of officers on the active list: 1 Colonel Commandant, 1 colonel, 2 lieutenant-colonels, 1 paymaster, 1 quartermaster, 1 adjutant and inspector, 4 majors, 2 assistant quartermasters, 20 captains, 30 first lieutenants, and 13 second lieutenants		180,860.00
Pay of officers on the retired list: 1 colonel, 2 lieutenant-colonels, 1 adjutant and inspector, 2 quartermasters, 9 captains, 3 first lieutenants, and 3 second lieutenants		43,170.00
Pay of noncommissioned officers, musicians, and privates: 1 sergeant-major, 1 quartermaster-sergeant, 1 leader of the band, 1 drum major, 50 first sergeants, 150 sergeants, 220 corporals, 30 musicians, 120 drummers and fifers, and 2,026 privates, and for the expenses of clerks of the United States Marine Corps traveling under orders; and the number of enlisted men authorized as above for the Marine Corps shall be exclusive of those undergoing imprisonment with sentence of dishonorable discharge from the service at expiration of such confinement		496,000.00
Pay and allowances of retired enlisted men: 1 sergeant-major, 2 drum majors, 5 first-class musicians, 15 first sergeants, 20 sergeants, 4 corporals, 2 fifers, 1 drummer, and 44 privates, and for those who may be retired during the year		32,000.00
Undrawn clothing: Payment of discharged soldiers for clothing undrawn		23,000.00
Mileage: Mileage of officers traveling under orders without troops		8,000.00
Commutation of quarters to officers on duty without troops where there are no public quarters		4,000.00
PAY OF CIVIL FORCE.		
In the office of the Colonel Commandant:		
1 chief clerk		1,540.80
1 messenger, at $80.94 per month		971.28
In the office of the paymaster:		
1 chief clerk		1,600.00
1 clerk		1,496.52
1 clerk		1,257.12
In the office of the quartermaster:		
1 chief clerk		1,540.80
1 clerk		1,496.52
1 clerk		1,257.12
In the office of the adjutant and inspector:		
1 chief clerk		1,540.80
1 clerk		1,496.52
In the office of the assistant quartermaster, Washington, D. C., or San Francisco, Cal.:		
1 clerk		1,400.00
In the office of the assistant quartermaster, Philadelphia, Pa.:		
1 clerk		1,400.00
1 messenger, at $1.75 per diem		638.75
Total pay of civil force		17,636.23
Total amount to be appropriated under each head of appropriation		804,606.23
Amount appropriated for the current fiscal year, ending June 30, 1898		764,140.20

Estimates of appropriations required for the service of the fiscal year ending June 30, 1899, by the quartermaster's department, United States Marine Corps.

Detailed objects of expenditure, and explanations.	Estimated amount which will be required for each detailed object of expenditure.	Total amount to be appropriated under each head of appropriation.	Amount appropriated for the current fiscal year, ending June 30, 1898.
Provisions:			
For 1,500 noncommissioned officers, musicians, and privates, and for commutation of rations to 14 enlisted men detailed as clerks and messengers; also for payment of board and lodging of recruiting parties, said payment for board not to exceed $2,500; and no law shall be construed to entitle marines on shore duty to any rations, or commutation therefor, other than such as now are, or may hereafter be, allowed to enlisted men in the Army		$95,000.00	$100,000.00
Clothing:			
For 2,600 noncommissioned officers, musicians, and privates		107,255.00	97,255.00
Fuel:			
For heating barracks and quarters, for ranges and stoves for cooking, fuel for enlisted men, for sales to officers, maintaining electric lights, and for hot-air closets		19,500.00	19,500.00
Military stores:			
For pay of chief armorer, at $3 per day; 3 mechanics, at $2.50 each per day; for purchase of military equipments, such as cartridge boxes, bayonet scabbards, haversacks, blanket bags, knapsacks, canteens, musket slings, swords, drums, trumpets, flags, waist belts, waist plates, cartridge belts, sashes for officer of the day, spare parts for repairing muskets, purchase of ammunition, purchase and repair of instruments for the band, purchase of music and musical accessories, medals for excellence in gunnery and rifle practice, good-conduct badges, incidental expenses in connection with the school of application, signal equipment and stores, binocular glasses, for the establishment and maintenance of targets and ranges, for hiring established ranges, and for procuring, preserving, and handling ammunition		23,297.00	13 297.00
Transportation and recruiting:			
For transportation of troops, including ferriage, and the expenses of the recruiting service		15,000.00	15,000.00
Repairs of barracks:			
At Portsmouth, N. H.; Boston, Mass.; Newport, R. I.; Brooklyn, N. Y.; League Island, Pa.; Annapolis, Md.; headquarters and navy-yard, D. C.; Norfolk, Va.; Port Royal, S. C.; Pensacola, Fla.; Mare Island, Cal.; Bremerton, Wash., and Sitka, Alaska, and per diem for enlisted men employed under the direction of the quartermaster's department on the repair of barracks and other public buildings	10,000.00		
For rent of building used for manufacture of clothing, storing supplies, and office of assistant quartermaster, Philadelphia, Pa	2,000.00		
For repairs to marine barracks, Annapolis, Md	1,500.00	13,500.00	45,600.00
Forage:			
For forage in kind for 5 horses of the quartermaster's department and the authorized number of officers' horses		3,000.00	3,000.00
Hire of quarters:			
For hire of quarters for officers serving with troops where there are no public quarters belonging to the Government and where there are not sufficient quarters possessed by the United States to accommodate them, $4,500; for hire of quarters for 7 enlisted men employed as clerks and messengers in commandant's, adjutant and inspector's, paymaster's, and quartermaster's offices, Washington, D. C., assistant quartermaster's office, Philadelphia, Pa., and for the leader of the Marine Band, $21 each per month, $2,016; for hire of quarters for 7 enlisted men employed as above and in the office of the assistant quartermaster, Washington, D. C., at $10 each per month, $840 in all		7,356.00	6,996.00

Estimates of appropriations required for the service of the fiscal year ending June 30, 1899, by the quartermaster's department, United States Marine Corps—Continued.

Detailed objects of expenditure, and explanations.	Estimated amount which will be required for each detailed object of expenditure.	Total amount to be appropriated under each head of appropriation.	Amount appropriated for the current fiscal year, ending June 30, 1898.
Contingent:			
For freight, tolls, cartage, advertising, washing of bed sacks, mattress covers, pillowcases, towels, and sheets; funeral expenses of marines; stationery and other paper; telegraphing, rent of telephones, purchase and repair of typewriters, apprehension of stragglers and deserters; per diem of enlisted men employed on constant labor for a period of not less than ten days; repair of gas and water fixtures, office and barrack furniture; mess utensils for enlisted men, such as bowls, plates, spoons, knives and forks; packing boxes, wrapping paper, oilcloth, crash, rope, twine, camphor and carbolized paper, carpenter's tools, tools for police purposes, iron safes, purchase and repair of public wagons, purchase and repair of public harness, purchase of public horses, services of veterinary surgeons, medicines for public horses, purchase and repair of hose, repair of fire extinguishers, purchase of hand fire grenades, purchase and repair of carts, wheelbarrows, and lawn mowers, purchase and repair of cooking stoves, ranges, stoves and furnaces where there are no grates, purchase of ice, towels, soap, brushes, and combs for offices, postage stamps for foreign postage, purchase of books, newspapers and periodicals, improving parade grounds, repair of pumps and wharves, laying drain; water and gas pipes; water; introducing gas, and for gas, gas oil, and introduction, and maintenance of electric lights; straw for bedding; mattresses, mattress covers, pillows, sheets, wire bunk bottoms for the enlisted men at the various posts; furniture for Government houses and repair of same; and for all emergencies and extraordinary expenses arising at home and abroad but impossible to anticipate or classify	....	$35,000.00	$33,700.00
Total	....	318,908.00	334,348.00

Supplementary estimates of appropriations required for the service of the fiscal year ending June 30, 1899, by the quartermaster's department, United States Marine Corps.

Detailed objects of expenditure, and explanations.	Total amount to be appropriated under each head of appropriation.
Provisions:	
For 473 additional privates, 365 days, is 172,645 rations, at $21.38 per hundred rations	$36,911.50
Clothing:	
For 473 additional privates, at $49.80 (first year) per capita	23,555.40
Contingencies:	
For iron bedsteads, mattresses, mattress covers, sheets, pillows, clothing boxes, etc.	2,500.00
Total	62,966.90

Schedule of proposals received for supply of rations for the Marine Corps, for the year 1898, under advertisement from the quartermaster's office, dated May 3, 1897.

Names of contractors.	Portsmouth, N. H.	Charlestown, Mass.	Brooklyn, N. Y.	Philadelphia, Pa.	Washington, D. C.	Gosport, Va.	Annapolis, Md.	Port Royal, S. C.	Mare Island, Cal.	Sitka, Alaska.	Puget Sound, Wash.	Newport, R. I.
Terrence Brady				*$24.00								
Wm. P. Mills										$30.00		
Ed. De Groff										*29.00		
Baum & Marx		*$17.25	*$14.49			*$13.00		$48.00				
Frank Hume		21.49	21.73	29.73	*$21.73	21.73	*$24.73		$22.73			
John T. Regan		21.00	27.00	35.00		36.00						†$16.21
J. C. Ergood & Co.	$29.75	20.87	28.87	24.59	22.10	17.99	25.73					
W. H. Belford	35.00	41.25	26.21	35.00	35.00	35.00	39.00					39.00
M. L. Kelly									*14.99			
Fred. Koch		30.00	14.94									
Louis Weill			15.18									
W. G. Ahrens			14.73									
Herman R. Paul	*15.87											
Corcoran & Collins									15.90			
T. J. Barrows & Bros						16.40						
Patrick H. Horgan												*22.50
Chas. A. Simons		17.85										
Swaschbacher & Bros. Co											$23.00	
Charles E. Danner & Co								45.00				
Eastern Dressed Meat Co		19.85										
James Megarry									18.85			
W. E. Campbell								*39.00				
James McCorley				‡23.94½								
Louch, Augustine & Co											*20.00	
Clarence M. Prince	19.00											

*Accepted. † Delinquent. ‡ Received too late to be considered.

Statement of accepted proposals for supplies for the Marine Corps under advertisement dated May 3, 1897.

Name.	Class.	Amount.	Name.	Class.	Amount.
Paul J. Devitt	3, 4	$117.38	Wm. H. Wiley & Son	1	$214.00
Thomas Kelly	1	7,400.00	Louis Sickel	1	337.50
Chas. B. Edwards & Co	4	20.00	Rufus P. Clarke	3	30.90
Frank W. McNeal	4	348.68	Edmond R. Lyon	1	548.50
Rudolph Wurlitzer	2	185.64	B. Y. Pippey & Co	1	13,254.70
John Wanamaker	1, 3, 4	8,807.48	Manhattan Supply Co	1	1,024.08
Harry D. Dougherty	1	40.98	Cavanagh Bros. & Knapp	2, 3, 4	1,823.01
Wm. H. Horstmann Co	1, 2, 3	7,112.88	Manhattan Supply Co	1	734.10
John Galbraith	4	740.00	Thos. G. Hood	1, 2, 3	4,664.92
Paul J. Field	4	10.98	Henry I. Kent	1	19,758.00
Richard Levicks Son & Co	1	728.00	Joseph Loeb	3	10.00

Schedule of proposals received for supply of wood and coal to the Marine Corps, under advertisement of the quartermaster's office, dated——, 189—.

Names of bidders.	Wood (per cord).			Coal (per ton).					Splint.
	Oak, in stick.	Pine, in stick.	Pine (kindling), sawed and split.	Red ash (stove).	White ash (egg).	White ash (stove).	White ash (furnace).	White ash (nut).	
Marine Barracks, Portsmouth, N. H.:									
Augustus Stephenson	$5.50	$4.40							
E. C. Spinney	*4.75	*4.00							
J. B. Daish	8.00	7.80				$7.25	$7.05		
S. G. French	7.00	7.00				*6.44	*5.98		
Marine Barracks, Charlestown, Mass.:									
C. W. York & Co	7.50		$8.00						
J. B. Daish	*5.90		*7.50			7.50	6.40		
J. E. Lewis & Co	9.00	10.00				*6.50	*6.25		
S. G. French						7.24	6.44		

* Accepted.

*Schedule of proposals received for supply of wood and coal to the Marine Corps, under advertisement of the quartermaster's office, dated——, 189 —*Continued.

Names of bidders.	Wood (per cord).			Coal (per ton).					
	Oak, in stick.	Pine, in stick.	Pine (kindling), sawed and split.	Red ash (stove).	White ash (egg).	White ash (stove).	White ash (furnace).	White ash (nut).	Splint.
Marine Barracks, Brooklyn, N. Y.:									
J. J. Convery	$10.50	$10.50			$5.25	$5.70			
David Duncan & Son					4.84	4.98			
Max Morgenstein	9.94	9.94							
J. B. Daish	*7.00	*7.00			5.80	6.40			
S. G. French					4.62	6.00			
J. K. Wells					*4.32	*4.76			
Marine Barracks, League Island, Pa.:									
J. J. Convery	10.65	10.65			*4.90	*5.00		*$5.00	
J. B. Daish	*7.90	*7.60			6.80	7.00		6.60	
S. G. French					5.44	6.94		6.94	
J. W. Matthews & Sons†	8.70	8.70			4.90	5.00		4.80	
Offices and officers' quarters, Philadelphia, Pa.:									
J. J. Convery			$11.45	$*4.60	*4.50	*4.60			
J. B. Daish			*7.80	6.80	6.60				
J. W. Matthews & Sons†		11.57		5.00	4.90				
Marine Barracks, Annapolis, Md.:									
Henry B. Myers	*3.40	3.40			*5.45				
J. B. Daish		4.60			5.80				
J. B. Flood		*3.48			6.48				
Offices and officers' quarters in Washington and Georgetown, D. C., and within one mile of limits of said cities:									
V. B. Johnson	*4.30	*3.49	*4.39	*5.15	*4.70	*4.95	*$4.45	*4.70	
J. B. Daish			5.98	5.98		5.68	5.00		
Marine Barracks, navy-yard, Washington, D.C.:									
V. B. Johnson	*4.30	*3.49	*4.39	*5.15	*4.70	*4.95	*4.45	*4.70	
J. B. Daish	5.20	4.00			5.40	5.68	5.00		
Marine Barracks, Norfolk, Va.:									
Nottingham & Wrenn Co	*4.90	*4.90				*5.45	*5.25		*$5.20
J. B. Daish	5.95	5.75				6.75	5.40		11.98
G. W. Taylor & Co				*6.25			5.50		6.00
J. T. Parker & Bro	5.00	5.00				5.65	5.35		6.00
Officers' quarters, Norfolk, Va.:									
Nottingham & Wrenn Co.			*5.35			*5.35		*5.25	
J. B. Daish			7.80			6.80		6.40	
G. W. Taylor & Co				*5.99			*5.74	5.74	
Marine Barracks, Mare Island, Cal.:									
R. J. R. Aden	*12.45	*12.45			*17.00				‡10.25
C. H. Jouett	12.60	12.60			17.50				§15.50
G. W. Johnson	13.00	13.00							
J. L. Howard									‡*8.85 §11.00
Pinninger & Manchester, Newport, R. I	7.90	7.90		*6.45	5.95	5.95	5.95	5.95	
J. F. Regan	9.00	9.00		7.25	7.25	7.25	7.25	7.25	
Gardner B. Reynolds	*6.50	*6.50		6.47	*5.49	*5.74	*5.24	*5.49	
J. B. Daish	9.00	9.00		6.80	6.75	7.00	6.70	7.00	
S. G. French	13.00	13.00		8.00	7.75	7.75	7.50	7.50	
Marine Barracks, Sitka, Alaska:									
E. De Groff									‡14.00
W. P. Mills		*5.50	*7.00						‡14.00
Marine Barracks, Port Royal, S. C.:									
J. B. Daish		*7.50					6.40		
S. G. French						*9.00			

*Accepted. † Informal. ‡ Wellington § Welsh, egg.

INDEX TO SECRETARY'S REPORT.

Academy, Naval. (*See* Naval Academy.)
Act of—
  August 5, 1882, reducing number of officers, 36, 37, 39.
  August 14, 1888, concerning removal of charge of desertion, 25.
  December 16, 1892, relating to reduction of officers of the Navy, 37.
  February 9, 1889, providing for the deposits of savings of seamen, 29.
  January 21, 1881, relating to advertisements for supplies in the District of Columbia, 28.
  July 19, 1897, deficiency, provisions of, 7.
  March 3, 1891, relating to auxiliary cruisers, 3.
  May 25, 1896, relating to certified checks in lieu of bond, 28.
  October 1, 1890, relating to examining and retiring boards, 26.
    (*See also* Naval appropriations.)
Adams, the (cruiser), 9.
Alabama, the (battle ship), 4.
  Lack of armor delays work upon, 5, 6.
  Use of electricity for auxiliary purposes on board of, 10.
Alert, the (cruiser), 9.
Algiers, La., construction of steel floating dock at, recommended, 15.
Alliance, the (cruiser), 9.
Ammunition. (*See* Ordnance.)
Amphitrite, the (monitor), 9.
Annapolis, the (gunboat), 4, 8.
Appropriations and estimates, 34.
Appropriations, expenditures, and balances, 32, 33.
Armor:
  Board appointed to prepare plans and estimates for establishment of plant to manufacture, 6.
  Manufacturers unable to furnish, at price authorized by Congress, 5, 6.
    (*See also* Ordnance.)
Asiatic Squadron, vessels constituting, and movements, 9.
Assistant Secretary:
  Appointed chairman of board on reorganization of personnel of the Navy, 36.
  Inspects Naval Militia, 30.
Astronomers, recommendations concerning appointment of, 24.
Austria. (*See* Foreign docking facilities.)
Auxiliary cruisers and naval resources:
  Supply of guns and projectiles for, 21.
  What constitutes, and adaptability to naval service, 3.
Bailey, the (torpedo boat), 5.
Balances, expenditures, and appropriations, 32, 33.
Baltimore, the (cruiser), 25.
Bancroft, the (gunboat), 9.
Bath Iron Works, 4.
Battle ships:
  Completed and accepted since last report, 4.
  Construction of one new, recommended, 41.
  Exercise of, as squadron, for first time, 8.
  In course of construction, 4–6.
  Manufacture of ordnance for, 20.
Bennington, the (gunboat), 9.
Boards:
  Appointed to consider reorganization of personnel of the Navy, 36.
  Appointed to formulate plan for increased docking facilities, 13.
  Appointed to prepare plans and estimates for establishment of plant to manufacture armor, 6.

- Boards—Continued.
  - Recommendations concerning naval examining and retiring, 26.
  - Recommendations of board for inspection of merchant vessels, 21.
  - Resolution and recommendations of Board of Visitors to Naval Academy, 23.
  - Summary of reports of labor board, 20.
- Bonds, acceptance of certified checks in lieu of, recommended, 28.
- *Boston*, the (cruiser), 9.
- Boston, Mass., celebration at, of the one hundredth anniversary of launching of frigate *Constitution*, 10.
- Boston Navy-Yard. (*See* Yards and docks.)
- *Brooklyn*, the (cruiser), 4, 8, 25.
  - Present at jubilee commemorating sixtieth anniversary of coronation of Queen Victoria, 9.
  - Use of electricity for auxiliary purposes on board of, 9, 10.
- Bunce, F. M. (Rear-Admiral), succeeded by Rear-Admiral Sicard in command of North Atlantic Squadron, 8.
- Bureau of Construction and Repair:
  - Estimates, appropriations, etc., 17, 33, 34.
  - Plans prepared by, for preservation of torpedo boats, 8.
  - Responsibility for design, etc., of composite gunboats placed upon, 6.
- Bureau of Equipment:
  - Coal, the principal item of expenditure, 24.
  - Establishment of homing-pigeon service, 24.
  - Estimates, appropriations, etc., 32, 34.
  - Naval Observatory—
    - Astronomers on duty at, 24.
    - Work done at, 24.
  - Professors of mathematics—
    - Amendment of statute authorizing appointment of, recommended, 24.
    - Name of, a misnomer; how employed, 24.
  - Work done under, for fiscal year ending June 30, 1897, 23.
- Bureau of Medicine and Surgery:
  - Estimates, appropriations, etc., 33, 34.
  - Medical Corps, vacancies in, and age limit, 29.
  - Work of, during year, 29.
- Bureau of Navigation:
  - Chief of, recommends additional officers, 37.
  - Enlisted men, number and nationality, 23.
  - Estimates, appropriations, etc., 32–34.
  - Naval Academy—
    - Recommendation of Superintendent and Board of Visitors as to age limit, 23.
    - Resolution of Board of Visitors regarding construction of buildings at, 23.
  - Recommendation of Chief of, regarding patrol service on Yukon River, Alaska, 22.
- Bureau of Ordnance, estimates, appropriations, etc., 33, 34.
  - (*See also* Ordnance.)
- Bureau of Steam Engineering:
  - Estimates, appropriations, etc., 17, 25, 33, 34.
  - Work performed by, 25.
- Bureau of Supplies and Accounts:
  - Advertisements in the District of Columbia, 28.
  - Certified checks, acceptance of, in lieu of bond, recommended, 28.
  - Checkage of pay of officers temporarily on shore, 28.
  - Concentration of matters relating to purchase of supplies, etc., under, 27.
  - Estimates, appropriations, etc., 33, 34.
  - Increase of facilities of clothing factory at New York recommended, 27.
  - Oil house at New York Navy-Yard, construction of, recommended, 27.
  - Report of Paymaster-General referred to, 27.
- Bureau of Yards and Docks, estimates, appropriations, etc., 17, 32, 34.
  - (*See also* Yards and docks.)
- California Naval Militia, allotment of appropriation to, 30.
- *Castine*, the (gunboat), 9.
- Central power plants at navy-yards, 18.
- Charles Hillman Company, 5.
- *Charleston*, the (cruiser), 25.
- Charleston, S. C., blockade of, by North Atlantic Squadron, 8.
- Checks, certified, acceptance of, in lieu of bond, recommended, 28.
- Chester, C. M. (Captain), commanding South Atlantic Squadron, 9.
- Chief engineers, examination of, for promotion, 26.
- China. (*See* Foreign docking facilities.)
- *Cincinnati*, the (cruiser), 9.

- Civilian employees at navy-yards:
  - Charges of favoritism not well grounded, 18.
  - Clerks, draftsmen, watchmen, and messengers in classified service, 19.
  - Efficiency reports required semiannually, 19.
  - Order of certification, 18.
  - Present system insures higher standard of efficiency, 18, 19.
  - Rules governing appointments, promotions, reductions, and dismissals, 18, 19.
  - Summary of labor board reports for year ending August 31, 1897, 20.
- Civilian witnesses before naval courts, 26.
- Classification of vessels, 26.
- *Columbia*, the (cruiser), placed in reserve, 8, 9.
- Columbian Iron Works, 4.
- *Concord*, the (gunboat), 9, 25.
- Connecticut Naval Militia, allotment of appropriation to, 30.
- *Constitution*, the (frigate):
  - Appropriation sufficient to fit, for training ship recommended, 10.
  - Celebration of one hundredth anniversary of launching of, 10.
- Construction and Repair. (*See* Bureau of Construction and Repair.)
- Contracts awarded for—
  - Construction of new vessels, 6, 7.
  - Manufacture of projectiles, 21, 22.
- Cramp, William, & Sons, 4.
- *Craven, T. A. M.*, the (torpedo boat), 5.
- Cruisers, completed and accepted since last report, 4.
- *Cushing*, the (torpedo boat), 9.
- *Dahlgren*, the (torpedo boat), 5.
- *Davis*, the (torpedo boat), 5.
- Depositions, authority to offer, as evidence before naval courts recommended, 26.
- Desertion, removal of charge of. (*See* Judge-Advocate-General.)
- *Detroit*, the (cruiser), 8.
- Dialogue, J. H., & Son, 4.
- District of Columbia, advertisements for supplies in, how made, 28.
- Docks. (*See* Yards and docks.)
- *Dolphin*, the (dispatch boat), 9.
- *Du Pont*, the (torpedo boat), 9.
- Electricity:
  - Use of, for auxiliary purposes, 9, 10.
  - Use of, in driving machinery at navy-yards recommended, 18.
- Engineers, chief, examination of, for promotion, 26.
- England. (*See* Great Britain.)
- Equipment. (*See* Bureau of Equipment.)
- *Ericsson*, the (torpedo boat), 9.
- *Essex*, the (cruiser), 9.
- Estimates and appropriations, 34.
- European Squadron, vessels constituting, and movements, 9.
- Examination of chief engineers for promotion, 26.
- Examining and retiring boards, recommendations concerning, 26.
- Expenditures, appropriations, and balances, 32, 33.
- *Farragut*, the (torpedo boat), 5.
- *Fern*, the (fourth-rate steamer), 8.
- *Foote*, the (torpedo boat), 4.
- Foreign docking facilities, 16.
- Fort Lafayette, temporary occupation of, for magazine purposes, 22.
- Fort Mifflin, construction of magazine at, 22.
- Fort Wadsworth, temporary occupation of, for magazine purposes, 22.
- *Fox*, the (torpedo boat), 5.
- France:
  - Docking facilities, 16.
  - Naval construction, 11.
- Gas Engine and Power Company and Charles L. Seabury Company, Consolidated, 5.
  - Awarded contract for construction of 235-ton torpedo boat, 7.
- Georgia Naval Militia, allotment of appropriation to, 30.
- Germany:
  - Docking facilities, 16.
  - Naval construction, 12.
- *Goldsborough*, the (torpedo boat), 5.
- Great Britain:
  - Docking facilities, 16.
  - Naval construction, 10, 11.
- Greece. (*See* Turkey and Greece, etc.)

Gunboats:
  Completed and accepted since last report, 4, 6.
  Cost of construction and maintenance, 6.
  In course of construction, 4.
  Responsibility of Bureau of Construction and Repair for design, etc., 6.
Guns. (*See* Ordnance.)
Gwin, the (torpedo boat), 5.
Harlan & Hollingsworth, 5.
  Awarded contract for construction of 340-ton torpedo boat, 7.
Hartford, the (cruiser), 20.
Helena, the (gunboat), 4, 9.
Herbert, Secretary, work of, referred to, 6, 9, 31, 40.
Herreshoff Manufacturing Company, 4.
Hillman, Charles, Company, 5
Illinois, the (battle ship), 4.
  Lack of armor delays work upon, 5, 6.
  Use of electricity for auxiliary purposes on board of, 10.
Illinois Naval Militia:
  Allotment of appropriation to, 30.
  Four divisions mustered in, 30.
  Inspected by Assistant Secretary, 30
Increase of the Navy, 40:
  Estimates, appropriations, etc., 34.
Indiana, the (battle ship), 8:
  Docking of, at Halifax, N. S., 13.
International Dry Dock and Construction Company of New York, proposition of, to construct dock, 15.
Iowa, the (battle ship), 4, 8.
Italy:
  Docking facilities, 16.
  Naval construction, 12.
Japan:
  Docking facilities, 16.
  Naval construction, 11.
Japonski Island, Alaska, estimate for coaling wharf at, 18.
Judge-Advocate-General, recommendations by, concerning—
  Civilian witnesses before naval courts, 26.
  Classification of vessels, 26.
  Depositions, 26.
  Examination of chief engineers for promotion, 26.
  Expense of trial trips, 27.
  Naval examining and retiring boards, 26.
  Preservation of the naval pension fund, 26.
  Removal of charge of desertion, 25.
Kearsarge, the (battle ship), 4, 22.
  Progress of work upon, 5.
  Progress of work upon armor for, 21.
  Use of electricity for auxiliary purposes on board of, 9.
Kentucky, the (battle ship), 4.
  Progress of work upon, 5.
  Progress of work upon armor for, 21.
  Use of electricity for auxiliary purposes on board of, 9.
Key West Naval Station. (*See* Yards and docks.)
League Island Navy-Yard. (*See* Yards and docks.)
Libraries of the War and Navy Departments, consolidation of, recommended, 32.
Louisiana Naval Militia, allotment of appropriations to, 30.
Machias, the (gunboat), 9.
McKee, the (torpedo boat), 5.
MacKenzie, the (torpedo boat), 5.
McNair, F. V. (Rear-Admiral), commanding Asiatic Squadron, 9.
Maine, the (battle ship), 8.
Marblehead, the (cruiser), 8.
Mare Island Navy-Yard. (*See* Yards and docks.)
Marietta, the (gunboat), 4, 9.
Marine Corps:
  Additional enlistments in, recommended, 29.
  Establishment of post exchanges recommended, 29.
  Estimates, appropriations, etc., 33, 34.
  To make law providing for deposits of savings of seamen applicable to, 29.

Marion, the (cruiser), 25.
Massachusetts, the (battle ship), 8.
Massachusetts Naval Militia, allotment of appropriation to, 30.
Maryland Naval Militia, allotment of appropriation to, 30.
Mathematics, professors of. (*See* Bureau of Equipment.)
Medical Corps. (*See* Bureau of Medicine and Surgery.)
Medicine and Surgery. (*See* Bureau of Medicine and Surgery.)
Michigan Naval Militia:
    Allotment of appropriation to, 30.
    Inspected by Assistant Secretary, 30.
    Yantic loaned, 31.
Miller, Joseph N. (Rear-Admiral), commanding Pacific Squadron, 9.
Minneapolis, the (cruiser), placed in reserve, 8, 9.
Miscellaneous receipts, 32.
Monadnock, the (monitor), 9.
Monocacy, the (cruiser), 9.
Monterey, the (monitor), 9.
Montgomery, the (cruiser), 8.
Moran Bros. Co., 5.
Morris, the (torpedo boat), 5.
Nashville, the (gunboat), 4, 8.
Naval Academy, 24.
    Age limit, 38.
    Appropriation inadequate for construction of practice ship for, 7.
    Recommendation of Superintendent of, 37, 38.
        (*See also* Bureau of Navigation.)
Naval appropriations, provisions of act for, for year ending June 30, 1898, 6.
Naval construction abroad:
    France, 11.
    Germany, 12.
    Great Britain, 10-12.
    Italy, 12.
    Japan, 11, 12.
    Russia, 12.
    Spain, 12.
Naval courts:
    Authority to compel attendance of civilian witnesses urged, 26.
    Authority to offer depositions as evidence before, recommended, 26.
Naval examining and retiring boards. (*See* Judge-Advocate-General.)
Naval Home, Philadelphia, Pa., maintained from naval pension fund, 26.
Naval library, consolidation of, with that of War Department recommended, 32.
Naval magazines. (*See* Ordnance.)
Naval Militia:
    Appropriation insufficient for proper maintenance and drill, 31.
    Attendance of officers of, at Naval War College, 30.
    Estimates, appropriations, etc., 30, 31.
    Growth and development of, and allotment of appropriation, 30, 31.
    Inspection of, by Assistant Secretary, 30.
    Loan of vessels to, 31.
    Organizations in seventeen States, 30.
    Valuable as second line of defense, 31.
        (*See also* respective States.)
Naval Observatory. (*See* Bureau of Equipment.)
Naval pension fund. (*See* Judge-Advocate-General.)
Naval Reserve system:
    Columbia and *Minneapolis* placed in reserve, 8.
    Limited number of officers and men important consideration, 8.
    Necessary to avoid cost of keeping too many vessels in active service, 8.
Naval resources. (*See* Auxiliary fleet and naval resources.)
Naval supplies, amendment of act authorizing acceptance of certified checks recommended, 28.
Naval War College:
    Cooperation of officers of Naval Militia in work of, 30.
    Lectures, attendance, etc., 30.
    Principal problem under consideration, 30.
    Value and importance of work of, 30.
Naval War Records:
    Progress of work upon, 31.
    Reorganization of office of, recommended, 31.

Navigation. (*See* Bureau of Navigation.)
Navy, the:
  Assistant Secretary of, inspects Naval Militia, 30.
  Classification of vessels, 26.
  Compared with that of other nations, 3.
  Cost of maintenance, 41.
  Enlisted men in, number and nationality, 23
  Estimates, appropriations, etc., 32-34.
  Health record of, satisfactory, 29.
  Increase of the, 40.
  Personnel of. (*See* Personnel of the Navy.)
  Present effective fighting force of, 3, 4.
Navy-yards and docks. (*See* Yards and docks.)
Neutrality laws, enforcement of, 9.
Newark, the (cruiser), 25.
New Jersey Naval Militia, allotment of appropriation to, 30.
New Orleans, La., construction of dock at, recommended, 13.
Newport, the (gunboat), 4, 9.
Newport, R. I., establishment of homing-pigeon service at, 24.
Newport News Ship Building and Dry Dock Company, 4.
  Proposition of, to construct dock at Newport News, Va., 15.
New York, the (cruiser), 8.
New York Naval Militia:
  Allotment of appropriation to, 30.
  Inspected by Assistant Secretary, 30.
New York Navy-Yard. (*See* Yards and docks.)
Nixon, Lewis, 4.
Norfolk Navy-Yard. (*See* Yards and docks.)
North Atlantic Squadron:
  Enforcement of neutrality laws by vessels of, 9.
  Rear-Admiral Sicard succeeds Rear-Admiral Bunce in command of, 8.
  Vessels constituting, exercises, etc., 8.
North Carolina Naval Militia:
  Allotment of appropriation to, 30.
  No duty performed by, on vessels of the Navy, 31.
Ohio Naval Militia:
  Allotment of appropriation to, 30.
  Inspected by Assistant Secretary, 30.
  Organization of, 30.
Olympia, the (cruiser), 9.
Oregon, the (battle ship), 4, 9.
Ordnance:
  Ammunition—
    Cost of, 22.
    Establishment of Government factory suggested, 22.
  Armor—
    Completion of contract for, for battle ship *Iowa*, 21.
    Progress of work upon, for battle ships *Kearsage* and *Kentucky*, 21.
    Total amount contracted for, 21.
  Naval magazines—
    Embarrassment of Government for want of suitable; recommendations, 22.
    Erection of new, and repairs to old, 22.
  Progress of Bureau of, in arming vessels, 20.
  Projectiles, contracts made for manufacture of, 21, 22.
  Reserve supply of guns and projectiles—
    Progress in obtaining, 21.
    Recommendations of board for inspection of merchant vessels, 21.
  Secondary batteries—
    Contracts for projectiles, 20, 21.
    Manufacture of guns, 20, 21.
Pacific Squadron, vessels constituting, 9.
Pay of officers temporarily on shore, proposed amendment to section 1571, Revised Statutes, relating to, 28.
Paymaster-General, report of, referred to, 27.
Pennsylvania Naval Militia, allotment of appropriation to, 30.
Pensacola, Fla., 29.
Pension fund, preservation of, 26.
Personnel of the Navy:
  Additional officers and men necessary; recommendations, 36-40.
  Courts-martial, 36.

Personnel of the Navy—Continued.
  High character and professional attainments of officers, 34-36.
  Occasional cases of petty frictions and jealousies, 35.
  Reorganization of, 36.
  Restoration of officers discharged under act of 1882, 39.
  Sporadic cases of demerit, 35.
Petrel, the (gunboat), 9, 25.
Philadelphia, the (cruiser), 9.
Philadelphia, Pa., Naval Home at, maintained from naval pension fund, 36.
Plunger, the (torpedo boat), 5.
Porter, the (torpedo boat), 4, 9.
Port Royal Naval Station. (*See* Yards and docks.)
Portsmouth Navy-Yard. (*See* Yards and docks.)
Princeton, the (gunboat), 4, 6.
Professors of mathematics. (*See* Bureau of Equipment.)
Projectiles. (*See* Ordnance.)
Puget Sound Naval Station. (*See* Yards and docks.)
Puritan, the (monitor), 8.
  Completed and commissioned December 10, 1896, 4.
Queen Victoria. (*See* Victoria, Queen.)
Raleigh, the (cruiser), 9.
Receipts, miscellaneous, 32.
Removal of charge of desertion. (*See* Judge-Advocate-General.)
Reserve supply of guns and projectiles. (*See* Ordnance.)
Reserve system. (*See* Naval Reserve system.)
Revised Statutes:
  Sections 3709 and 3718, proposed amendment to, relating to advertisements in the District of Columbia, 28.
  Section 1571, proposed amendment to, relating to pay of officers, 28.
  Section 3618, referring to miscellaneous receipts, 32.
Rhode Island Naval Militia, allotment of appropriation to, 30.
Rodgers, the (torpedo boat), 5.
Rowan, the (torpedo boat), 5.
Russia:
  Docking facilities, 16.
  Naval construction, 12.
St. Julien's Creek, construction of magazine at, 22.
San Francisco, the (cruiser), 9.
Seabury, Charles L. (*See* Gas Engine and Power Company and Charles L. Seabury Company, Consolidated.)
Secondary batteries. (*See* Ordnance.)
Selfridge, Thomas O. (Rear-Admiral), commanding European Squadron, 9.
Ships, vessels, etc.:
  Arming of, 20.
  Classification of, 26.
  Construction of, abroad, 10-12.
  Completed and accepted since last annual report, 4.
  Contracts awarded for construction of, 6, 7.
  Cost of construction and maintenance, 6, 7.
  Estimates, appropriations, etc., equipment, 32.
  In commission, 8, 9.
  In course of construction, progress of work upon, 4-7.
  In reserve, 8, 9, 15.
  Loan of, to Naval Militia, 31.
  New, construction of, recommended, 41.
  Preservation of, 7.
  Preservation of machinery of, 25.
  Responsibility of design, etc., 6.
  Unassigned and on special duty, 9.
Sicard, Montgomery (Rear-Admiral), succeeds Rear-Admiral Bunce in command of North Atlantic Squadron, 8.
South Atlantic Squadron, vessels constituting, 9.
South Carolina Naval Militia:
  Allotment of appropriation to, 30.
  No duty performed by, on vessels of the Navy, 31.
Spain:
  Docking facilities, 16.
  Naval construction, 12.
Squadrons. (*See* respective squadrons.)
Standish, the (tug), 9.

Steam engineering. (*See* Bureau of Steam Engineering.)
Stringham, the (torpedo boat), 5.
Submarine torpedo boat. (*See* Torpedo boats.)
Supplies and accounts. (*See* Bureau of Supplies and Accounts.)
Surgeon-General, report of, referred to, 29.
T. A. M. Craven, the (torpedo boat), 5.
Tables:
  Appropriations, expenditures, and balances, 32, 33.
  Condition of work on vessels under construction, 4, 5.
  Contracts awarded for manufacture of shell, 21, 22.
  Contracts awarded for torpedo boats, 7.
  Estimates and appropriations, 34.
  Naval construction abroad, 10–12.
  Pay of officers and men, 36.
  Summary of labor board reports, 20.
  Vessels accepted since last report, 4.
Talbot, the (torpedo boat), 5.
Terror, the (monitor), 8.
Texas, the (battle ship), 8.
Torpedo boats:
  Completed and accepted since last report, 4.
  Construction of new, recommended, 41.
  Construction of three, authorized, 6.
  Contracts awarded for construction, 7.
  Estimates for housing at navy-yards, 17.
  In course of construction, 5.
  Preservation of, 7.
  Work on, not as rapid as contract requires, 6.
Torpedoes. (*See* Ordnance.)
Tracy, Secretary, work of, referred to, 17, 37.
Trial trips, expense of, 27.
Turkey and Greece, movements of European Squadron during war between, 9.
Union Iron Works, 4.
Vesuvius, the (dynamite gun vessel), 8.
Vicksburg, the (gunboat), 4, 9.
Victoria, Queen, celebration of sixtieth anniversary of coronation of, 9.
Virginia Naval Militia, one division organized, 30.
War College. (*See* Naval War College.)
War Department library, consolidation of, with that of Navy Department recommended, 32.
Washington Navy-Yard. (*See* Yards and docks.)
Wheeling, the (gunboat), 4, 9.
Wilmington, the (gunboat), 4, 8.
Winslow, the (torpedo boat), 5.
Wisconsin, the (battle ship), 4.
  Lack of armor delays work upon, 5, 6.
Witnesses, civilian, to compel attendance upon naval courts, 26.
Wolff & Zwicker Iron Works, 5.
  Awarded contract for construction of 247.5-ton torpedo boat, 7.
Yantic, the (cruiser), loaned Michigan Naval Militia, 31.
Yards and docks:
  Docks:
    Foreign, 16.
    Number, location, and capacity of, 12, 13.
    Proposition of International Dry Dock and Construction Company, of New York, to construct, 15.
    Proposition of Newport News Shipbuilding and Dry Dock Company to construct, at Newport News, Va., 15.
    Report of board recommending increased facilities, 13.
    Repairs, improvements, and construction of, at—
      Boston, Mass., 13, 14.
      League Island, Pa., 14.
      Mare Island, Cal., 13, 15, 16.
      New Orleans, 13, 15.
      New York, 13, 14, 16.
      Norfolk, 13, 15.
      Port Royal, 13, 15.
      Portsmouth, N. H., 14.
    Urgent need of increased facilities, 12–16, 41.

Yards and docks—Continued.
  Navy-yards:
    Central power plants at, 18.
    Civilian employees at. (*See* Civilian employees at navy-yards.)
    Estimates for housing torpedo boats at, 17.
    Estimates for improvements, repairs, etc., at—
      Boston, Mass., 17.
      Key West, Fla., 17.
      League Island, Pa., 17.
      Mare Island, Cal., 17.
      New York, N. Y., 17.
      Norfolk, Va., 17.
      Port Royal, S. C., 17.
      Portsmouth, N. H., 17.
      Puget Sound, 17.
      Washington, D. C., 17.
    Key West, Fla., establishment of homing-pigeon service at, 24.
    League Island, Pa., additional buildings required at, 22.
    Mare Island, Cal., establishment of homing-pigeon service at, 24.
    New York, N. Y.—
      Construction of oil house at, recommended, 27.
      Establishment of homing-pigeon service at, 24.
      Increase of facilities of clothing factory at, 27.
    Norfolk, Va., establishment of homing-pigeon service at, 24.
    Port Royal station, construction of steam tug for, 7.
    Portsmouth, N. H., establishment of homing-pigeon service at, 24.
    Puget Sound Station, construction of steam tug for, 7.
    Summary of labor board reports for year ending August 31, 1897, 20.
    Washington, D. C., recommendations concerning advertisements for supplies, 28.
Yorktown, the (gunboat), 9.

LIST OF PAPERS FORMING APPENDIX.

No. 1. Office of the Secretary of the Navy: Estimates, proposals, and contracts, 43-61.
2. Receipts from sales of Government property, 62-66.
3. Report of Lieut. S. C. Lemly, U. S. N., Judge-Advocate-General, 67-82.
4. Report of Prof. E. K. Rawson, U. S. N., Superintendent of Naval War Records, 83.
5. Operations of the Naval Militia, 85-134.
6. Report of Commander C. F. Goodrich, U. S. N., president of Naval War College and Torpedo School, 135-140.
7. Report of the Board of Visitors to the Naval Academy, 1897, 141-143.
    Appendix to report, 145-153.
8. Bureau of Yards and Docks:
    Report of Rear-Admiral C. O. Matthews, U. S. N., Chief, 155-167.
    Report of Prof. O. G. Dodge, U. S. N., 168-170.
    Estimates, expenditures, appropriations, etc., 171-193.
9. Bureau of Equipment:
    Report of Commodore F. E. Chadwick, U. S. N., Chief, 195-219.
        Report of Commander W. Maynard, U. S. N., inspector of electric lighting, 199.
        Report of Lieut. Commander Giles B. Harber, U. S. N., superintendent of compasses, 200.
        Report of Commodore R. L. Phythian, U. S. N., Superintendent Naval Observatory, 201-215.
            Report of Prof. William Harkness, U. S. N., astronomical director, United States Naval Observatory, 201-207.
            Report of Prof. W. W. Hendrickson, U. S. N., director of Nautical Almanac, 208.
            Report of Lieut. Commander Walton Goodwin, U. S. N., general storekeeper, 209.
            Report of Lieut. Charles E. Fox, U. S. N., department of chronometers and time service, 210-214.
        Estimates of appropriations, etc., 215-219.
10. Bureau of Navigation:
    Report of Commodore A. S. Crowninshield, U. S N., Chief, 221-223.
        Appendix to report, 224-274.
            A. Vessels serving on stations and duties performed by each, 224-243.
            B. Report of Capt. P. H. Cooper, U. S. N., Superintendent Naval Academy, 244-247.
            C. Report of Commander John McGowan, U. S. N., commandant Naval Training Station, 248.
            D. Report of Commander J. E. Craig, U. S. N., hydrographer, 250-266.
            E. Estmates of appropriations, 267-271.
            F. Memorandum by Lieut. George M. Stoney, U. S. N., concerning Alaska, 272-274.
11. Bureau of Ordnance:
    Report of Commodore Charles O'Neil, U. S. N., Chief, 275-298.
        Appendix to report, 298-338.
            A. Abstracts of offers for furnishing supplies or services, etc., 298.
            B. Estimates of appropriations, 298-300.
            C. Report of Commander E. C. Pendleton, U. S. N., Superintendent Naval Gun Factory, 301-306.
            D. Report of Lieut. Commander T. C. McLean, U. S. N., inspector of ordnance, in charge Naval Torpedo Station, 306-314.

- No. 11. Bureau of Ordnance—Continued.
  - Report of Commodore Charles O'Neil, U. S. N., Chief—Continued.
    - Appendix to report—Continued.
      - E. Report of Ensign N. C. Twining, U. S. N., inspector of ordnance, Hartford, Conn., 314–324.
      - E 2. Report of Ensign Frank H. Schofield, U. S. N., inspector of ordnance, Hartford, Conn., 324.
      - F. Report of Commander A. R. Couden, U. S. N., inspector of ordnance, Indian Head, Md., 326–331.
      - Ballistic tests, 332–338.
- 12. Bureau of Construction and Repair:
  - Report of Chief Constructor Philip Hichborn, U. S. N., Chief, 339–411.
    - Estimates of appropriations, 339–341.
    - Tables of vessels of the United States Navy, 356–388.
    - Extracts from reports of naval constructors relative to work done at navy-yards during the fiscal year, 389–394.
- 13. Bureau of Steam Engineering:
  - Report of Chief Engineer George W. Melville, U. S. N., Chief, 413–441.
    - Table giving result of trials, 436–440.
    - Estimates of appropriations, 440, 441.
  - Appendix to report—report of Chief Engineer E. R. Freeman, U. S. N., regarding inspection of steel, 442.
- 14. Bureau of Supplies and Accounts:
  - Report of Paymaster-General Edwin Stewart, U. S. N., Chief, 445–449.
    - Appendix to report, 450–533.
      - Estimates of appropriations, 450, 451.
      - Statement A.—General naval account for the fiscal year ending June 30, 1897, 452–460.
      - Statement B.—Receipts and expenditures of provisions, fiscal year 1897, 460–465.
      - Statement C.—Expenditures of money and material at shore stations, etc., fiscal year ending June 30, 1897, 466–471.
      - Statement D.—Cost of maintenance of navy-yards and stations, fiscal year ending June 30, 1897, 471.
      - Statement E.—Cost of maintaining ships in commission, fiscal year ending June 30, 1897, 472–475.
      - Statement F.—Payments through Paymaster-General's Office on contract, open purchase, and open-contract vouchers during the fiscal year ending June 30, 1897, 476.
      - Statement G.—Value of supplies on hand July 1, 1896, the receipts from purchase and other sources, the expenditures during the year, and the balance on hand June 30, 1897, 476.
      - Statement H.—Value of supplies received and expended on board ships in commission for the year ending June 30, 1897, 477.
      - Statement I.—Value of real estate and chattels and machinery plant at the several navy-yards and stations, June 30, 1897, 477.
      - Statement K.—Public sales and reports of deposits during the fiscal year 1897 on account of sales of Government property, 478.
      - Schedule of proposals received, 480–533.
- 15. Bureau of Medicine and Surgery:
  - Report of Surg. J. C. Boyd, U. S. N., Acting Chief, 535–555.
  - Estimates of appropriations, 555.
- 16. Marine Corps:
  - Report of Col. Commandant Charles Heywood, U. S. M. C., 557–564.
    - Appendix to report, 565–578.
      - Report of school of application, 565.
      - Estimates of appropriations, 569–576.
        - Report of Colonel Commandant, 569, 570, 573.
        - Report of major and paymaster, U. S. M. C., 571
        - Report of major and quartermaster, U. S. M. C., 571–573.
      - Schedule of proposals, 577, 578.

INDEX TO APPENDIX.

- *Adams*, the (cruiser), 224, 234, 420.
- *Ajax*, the (monitor), 420.
- *Alabama*, the (battle ship), 289, 424.
- *Alarm*, the (torpedo ram), 421.
- *Alert*, the (cruiser), 224, 237, 421.
- *Alliance*, the (cruiser), 224, 234, 421.
- *Amphitrite*, the (monitor), 224, 230, 421.
- *Annapolis*, the (gunboat), 421, 425.
- Appropriations. (*See* Estimates of appropriations.)
- Armor for battle ships, 352, 353.
- Armor tests, tables, 332–338.
- *Atlanta*, the (cruiser), 421.
- *Bailey*, the (torpedo boat), 426.
- *Baltimore*, the (cruiser), 421.
- *Bancroft*, the (gunboat), 224, 239, 421.
- Battle ships Nos. 7, 8, 9, bids for, 395.
- *Bennington*, the (gunboat), 224, 235, 236, 421.
- *Boston*, the (cruiser), 228, 421.
- *Brooklyn*, the (cruiser), 224, 421.
- *Camanche*, the (monitor), 421.
- *Canonicus*, the (monitor), 421.
- *Castine*, the (gunboat), 224, 421.
- *Catskill*, the (monitor), 421.
- *Charleston*, the (cruiser), 421.
- *Chicago*, the (cruiser), 421.
- *Cincinnati*, the (cruiser), 224, 229, 421.
- *Columbia*, the (cruiser), 226, 421.
- Compass Office. (*See* Equipment, Bureau of, report of Lieut. G. B. Harber, U. S. N.)
- *Concord*, the (gunboat), 421.
- Construction and Repair, Bureau of:
  - Report of Chief Constructor Philip Hichborn, U. S. N., Chief, 339–411.
    - Armor for battle ships, 352, 353.
    - Battle ship *Iowa*, 345.
    - Care and preservation of torpedo boats, 352.
    - Contracts awarded, 346, 347.
    - Corps of naval constructors, 354.
    - Dry docks, 351.
    - Duties of the bureau, 343, 344.
    - Estimates of appropriation, 339–341.
    - Experimental model tank, 351.
    - Extracts from reports of naval constructors, work done at navy-yards and stations, 389–394.
    - Gunboats, 345, 346.
    - Improvement in navy-yard plants, 342.
    - Naval Militia, 353. (*See also* Naval Militia.)
    - Naval supply fund, 352.
    - Navy-yard plants, 399–411.
    - Proposals for new work, etc., 395–399.
    - Repair shops at Port Royal, S. C., and Puget Sound, Wash., 350, 351.
    - Ships in reserve, 350.
    - Steam tugs Nos. 6 and 7, 347.
    - Tables of vessels of the United States Navy, 356–388.
      - Armored steel vessels, 356–365.
      - Iron and wooden steam vessels, 382, 383.

Construction and Repair, Bureau of—Continued.
  Report of Chief Constructor Philip Hichborn, U. S. N., Chief—Continued.
    Table of vessels of the United States Navy—Continued.
      Steel, iron, and wooden steam tugs, 384, 385.
      Summary showing the number of vessels in the United States Navy, 388.
      Unarmored steel vessels, 366–381.
      Wooden sailing vessels, 385.
      Wooden sailing vessels, unfit for sea service, 386, 387.
      Wooden steam vessels unfit for sea service, 386, 387.
    Training ship for Naval Academy, 343.
    Turret turning gear, 348–350.
    Vessels completed, 344.
    Vessels surveyed and repaired, 348.
    Vessels under construction, 347, 348.
Contracts. (*See* Proposals and contracts.)
Cushing, the (torpedo boat), 224, 421.
Dahlgren, the (torpedo boat), 425.
Davis, the (torpedo boat), 426.
Detroit, the (cruiser), 224, 232, 421.
Dolphin, the (dispatch vessel), 224, 234, 235, 421.
Dupont, the (torpedo boat), 425.
Electric lighting, report of inspector, 199, 200.
Enterprise, the (cruiser), 421.
Equipment, Bureau of:
  Report of Commodore F. E. Chadwick, U. S. N., Chief, 195–219.
    Department of the Nautical Almanac. (*See* Naval Observatory, Department of the Nautical Almanac.)
    Estimates of appropriations, 215–218.
    Naval Observatory. (*See* Naval Observatory.)
    Report of Commander Maynard, U. S. N., inspector of electric lighting, 199, 200.
    Report of Lieut. Commander G. B. Harber, U. S. N., superintendent of compasses, 200, 201.
Ericsson, the (torpedo boat), 224, 421.
Essex, the (cruiser), 224, 234, 421.
Estimates of appropriations:
  Bureau of Construction and Repair, 339–341.
  Bureau of Equipment, 215–218.
  Bureau of Medicine and Surgery, 555, 556.
  Bureau of Navigation, 267–271.
  Bureau of Ordnance, 275, 298–300.
  Bureau of Steam Engineering, 413, 440, 441.
  Bureau of Supplies and Accounts, 450, 451.
  Bureau of Yards and Docks, 155, 173–176, 188–192.
  Hydrographic Office, 267, 268.
  Increase of the Navy—
    Armor and armament, 300.
    Construction and machinery, 340.
    Equipment, 218.
  Judge-Advocate-General's Office, 82.
  Marine Corps, 574–576.
  Naval Academy, 269–271.
  Naval Observatory, 216–218.
  Naval Stations, Newport, R. I., 268, 269, 300.
  Naval War College and Torpedo School, 269.
  Navy Department, 43–46.
  Pay, clerks to commandants, paymasters of yards, and general storekeepers, etc., 49.
  Pay, officers of U. S. Navy, 47, 48.
Estimates, Proposals and Contracts, Secretary's Office, 43–61.
Farragut, the (torpedo boat), 426.
Fern, the (tender), 224, 240–243, 421.
Foote, the (torpedo boat), 421, 425.
Fox, the (torpedo boat), 426.
Fortune, the (tug), 421.
Franklin, the (frigate), 421.
Goldsborough, the (torpedo boat), 426.
Gun Factory. (*See* Naval Gun Factory.)

- Guns:
  - Automatic, 6-millimeter, 284.
  - Breech-loading rifles 275–279.
  - Completed and in progress, Naval Gun Factory, 301, 302.
  - Machine, 320, 321.
  - Maxim-Nordenfelt, 59, 277.
  - Nickel steel, 8-inch, 284.
- *Gwin*, the (torpedo boat), 426.
- *Hartford*, the (cruiser), 421.
- *Helena*, the (gunboat), 421, 424.
- Hydrographic Office:
  - Bids and contracts for stationery, 55–58.
  - Estimates of appropriation, 267, 268.
  - Report of Commander J. E. Craig, U. S. N., Hydrographer, 250–266.
    - Branch offices, 265, 266.
    - Division of chart construction, 250–259.
      - Charts engraved on copper, 252–254,
      - Charts extensively corrected, 258.
      - Charts lithographed and published, 255–257.
      - Plate making, 258, 259.
    - Division of chart issue and supply, 259, 260.
    - Division of marine meteorology, 264, 265.
    - Division of sailing directions, 260–264.
- *Illinois*, the (battle ship), 289, 423.
- *Indiana*, the (battle ship), 224, 225, 421.
- *Iowa*, the (battle ship), 224, 345, 421.
- *Iroquois*, the (cruiser), 421.
- *Iwana*, the (tug), 421.
- *Jason*, the (monitor), 421.
- Judge-Advocate-General's Office:
  - Report of Lieut. Samuel C. Lemly, U. S. N., Judge-Advocate-General, 67–82.
    - Acquisition of patent rights, 79, 80.
    - Bonds, 78, 79.
    - Civilian witnesses before naval courts, 71, 72.
    - Classification of vessels, 76.
    - Depositions, 72, 73.
    - Desertion cases, extension of provisions of act of August 14, 1888, 68, 69.
    - Estimates of appropriations, 82
    - Examination of chief engineers before promotion, 73.
    - Expense of trial trips, 77.
    - Instruction in military law, 80, 81.
    - Insurance, 77.
    - Naval examining and retiring boards, 74, 75.
    - Naval prisons, 76.
    - Office force, 81, 82.
    - Pensions of beneficiaries of the Naval Home, Philadelphia, 69, 70.
    - Retirement of enlisted men in the Navy, 70, 71.
    - Sentences involving extra police duties and confinement on bread and water, 75.
- *Katahdin*, the (ram), 237, 422.
- *Kearsarge*, the (battle ship), 423.
- *Kentucky*, the (battle ship), 423.
- *Lancaster*, the (cruiser), 224, 229, 422.
- *Lehigh*, the (monitor), 422.
- *Leyden*, the (tug), 422.
- *Maine*, the (cruiser), 224, 227, 422.
- *Manhattan*, the (monitor), 422.
- *Machias*, the (gunboat), 232, 233, 422.
- *McKee*, the (torpedo boat), 426.
- *Mackenzie*, the (torpedo boat), 426.
- *Mahopac*, the (monitor), 422.
- *Marblehead*, the (cruiser), 224, 236, 422.
- *Marietta*, the (gunboat), 422, 425.
- Marine Corps:
  - Appendix to report—
    - Estimates of appropriations, 574–576.
    - Report of Major and Paymaster G. C. Goodloe, U. S. M. C., 571.
    - Report of Major and Quartermaster F. L. Denny, U. S. M. C., 571-573.

Marine Corps—Continued.
  Appendix to report—Continued.
    Report, School of Application, 565-568.
    Reports of Colonel Commandant Charles Heywood, U. S. M. C., regarding estimates, 569, 570, 573.
    Schedule of proposals, 577, 578.
    Special instructions to posts, 568, 569.
  Report of Colonel Commandant Charles Heywood, U. S. M. C., 557-564.
Marion, the (cruiser), 224, 236, 422.
Massachusetts, the (battle ship), 224, 226, 422.
Medical associations, 551, 552.
Medicine and Surgery, Bureau of:
  Appendix to report, estimates of appropriations, 555, 556.
  Report of Surg. J. C. Boyd, U. S. N., Acting Chief, 535-555.
    Ambulances, 553, 554.
    Appropriations, 535, 536.
    Aseptic operating rooms, bacteriological and chemical laboratories, 549.
    Book of instructions, 549.
    Cemeteries at naval hospitals, 543.
    Extension of naval hospital, Washington, D. C., 543.
    General sanitary rules, 552, 553.
    Handling sick and wounded, ambulance ships, 554.
    Improvements and repairs at naval hospitals, 538-543.
    Installation of disinfecting plant at naval hospitals, 548, 549.
    Medical associations, 551, 552.
    Medical Corps of the Navy, 549, 550.
    Naval Hospital Corps, 554, 555.
    Naval hospital fund, 535.
    Naval hospitals, 536-538.
    Naval stations, 545, 546.
    Navy pensions, 547.
    Navy-yards, 543-545.
    Passed assistant surgeons, 550.
    Portable operating tables, 553.
    Receiving ships, 546, 547.
    Revision of diet tables at hospitals, 553.
    Roentgen rays, 555.
    Supply table, microscopes, etc., 548.
    United States Naval Museum of Hygiene, 548.
Miantonomoh, the (monitor), 422.
Michigan, the (steamer), 224, 238, 422.
Minneapolis, the (cruiser), 226, 227, 422.
Minnesota, the (frigate), 422.
Mohican, the (cruiser), 422.
Monadnock, the (monitor), 224, 229, 422.
Monocacy, the (cruiser), 233, 234, 422.
Monongahela, the (sailing ship), 224, 238.
Montauk, the (monitor), 422.
Monterey, the (coast-defense vessel), 224, 231, 422.
Montgomery, the (cruiser), 224, 237, 422.
Morris, the (torpedo boat), 426.
Museum of Hygiene, 548.
Nahant, the (monitor), 422.
Nantucket, the (monitor), 422.
Narkeeta, the (tug), 422.
Nashville, the (gunboat), 422, 424.
Nautical Almanac. (*See* Naval Observatory: Department of the Nautical Almanac.)
Naval Academy:
  Estimates of appropriations, 269-271.
  Report of Board of Visitors, 141-143.
    Appendix to report—
      Minutes of meeting, 145-147.
      Report of committee on conditions of admission to and discharge from the Academy, and subjects of study and standard of scholarship, 148-151.
      Report of committee on grounds, buildings, sanitary condition, finance, and library, 151-153.
  Report of Capt. P. H. Cooper, Superintendent, 244-247.
  Schedule of proposals, 481, 492.
  Training ship for, 343.

Naval Gun Factory:
  Bureau of Ordnance, 292, 293.
  Report of Commander E. C. Pendleton, U. S. N., superintendent, 301–306.
    Ammunition hoists, 302.
    Articles manufactured, 303, 304.
    Guns, 301, 302.
    Improvements, 305.
    Machinery, 305.
    Mounts, 302.
    Officers on duty, 305, 306.
    Repairs, 304.
    Seamen gunners, 305.
Naval Home, Philadelphia, 164, 165.
  Pensions of beneficiaries, 69, 70.
  Schedule of proposals for supplies, 480.
Naval hospitals, 536–538.
  Cemeteries at, 543.
  Improvements and repairs, 538–543.
  Installation of disinfecting plant, 548, 549.
  Naval hospital fund, 555.
  Schedule of proposals for supplies, 490, 491, 530–532.
  Washington, D. C., extension, 543.
Naval Proving Ground, Indian Head, Md., 293, 294.
  Report of Commander A. R. Couden, U. S. N., in charge, 326–331.
  Tables of ballistic tests, 332–338.
Naval Torpedo Station, 294, 295.
  Estimates of appropriations, 300.
  Report of Lieut. Commander T. C. McLean, U. S. N., inspector of ordnance, in charge, 306–314.
    Boats, 311, 312.
    Boilers, 313.
    Buildings, 312, 313.
    Changes in personnel, 313, 314.
    Chemical laboratory, 310, 311.
    Explosives, 308.
    Fire and water system, 313.
    Gun cotton, 309.
    Instruction, 306–308.
    Machinery, 313.
    Manufactures, 308.
    Smokeless powder, 309.
    Torpedoes and torpedo material, 308.
    Wharves, 313.
Naval Training Station, Newport, R. I.:
  Estimates of appropriation, 268, 269.
  Report of Commander John McGowan, U. S. N., commandant, 248, 249.
Naval War College and Torpedo School:
  Estimates of appropriation, 269.
  Lectures delivered, 139, 140.
  Report of Commander C. F. Goodrich, U. S. N., president, 135–139.
Navigation, Bureau of:
  Appendix to report, 224–274.
    A. Vessels serving on stations and duties performed by each, 224–243.
    B. Report of the Superintendent of the Naval Academy, 244–247.
    C. Report of the commandant of the Naval Training Station, 248–249.
    D. Report of the Hydrographer to the Bureau of Navigation, 250–266.
    E. Estimates of appropriations, 267–271.
    Memorandum regarding the Klondike, by Lieut. G. M. Stoney, U. S. N., 272–274.
  Naval Training Station. (*See* Naval Training Station.)
  Naval War College and Torpedo School. (*See* Naval War College and Torpedo School.)
  Report of Commodore A. S. Crowinshield, Chief, 221–223.
Naval Militia:
  Appendix to report, 92–134.
    California, 118–127.
    Connecticut, 95–98.
    Georgia, 112–115.
    Illinois, 127–129.
    Maryland, 109–111.

- Naval Militia—Continued.
  - Appendix to report—Continued.
    - Massachusetts, 92–95.
    - Louisiana, 116–118.
    - Michigan, 130–132.
    - New Jersey, 102–105.
    - New York, 98–102.
    - Ohio, 132–134.
    - Pennsylvania, 105–109.
  - Memorandum for board appointed to report upon the condition and efficiency of the Naval Militia, 91, 92.
  - Report of Hon. Theodore Roosevelt, Assistant Secretary of the Navy, 85, 86.
  - Report of Lieut. J. H. Gibbons, U. S. N., on State organizations, 86–91.
  - Transfer of Government property to, 353.
- Naval Observatory:
  - Estimates of appropriations, 216–218.
  - Report of Commodore R. L. Phythian, U. S. N., superintendent, 201–215.
    - Buildings and grounds, 214, 215.
    - Department of astronomical observations, report of Prof. William Harkness, U. S. N., astronomical director, 201–207.
    - Department of chronometers and time service, report of Lieut. C. E. Fox, U. S. N., in charge, 210–214.
    - Department of magnetism and meteorology, 214.
    - Department of nautical instruments, report of Lieut. Commander Walton Goodwin, U. S. N., general storekeeper, 209, 210.
    - Department of the Nautical Almanac, report of Prof. W. W. Hendrickson, U. S. N., director, 208, 209.
    - Library, 214.
  - Schedules of bids, 218, 219.
- Naval War Records Office:
  - Estimates of appropriations, 83, 84.
  - Report of Prof. E. K. Rawson, U. S. N., superintendent, 83, 84.
- Navy pensions, 547.
- Navy-yards and stations:
  - Boston, 389, 401, 402, 415, 480, 484, 486, 491, 513.
  - Estimates, 173–176.
  - European, vessels serving, 224.
  - Expenditure, 171–173, 466–471.
  - General maintenance, 469.
  - Key West, Fla., 419, 512, 516.
  - League Island, Pa., 391, 403–406, 417, 481, 492, 496, 503, 521.
  - Machinery plant, 468.
  - Mare Island, Cal., 392–394, 408–411, 420, 482, 483, 484, 487, 488, 494, 495, 496, 497, 498, 505, 506, 511, 512, 514, 515, 518, 521, 523, 524, 525, 528, 529.
  - Naval Academy. (*See* Naval Academy).
  - Naval hospitals. (*See* Naval hospitals.)
  - Naval Torpedo Station. (*See* Naval Torpedo Station.)
  - Naval Training Station. (*See* Naval Training Station, Newport, R. I.)
  - Naval War College and Torpedo School. (*See* Naval War College and Torpedo School.)
  - Navy-yards (Bureau Medicine and Surgery), 543–546.
  - New London, Conn., 416, 481, 491.
  - Newport, R. I., 416, 481, 491.
  - New York, 192, 193, 389–391, 402, 403, 416, 417, 481, 483, 484, 485, 486, 487, 488–490, 492, 493, 497, 498, 499, 500–503, 507, 509, 510, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 523, 524, 525, 526, 527, 529, 530, 532, 533.
  - Norfolk, Va., 392, 406–408, 418, 419, 482, 484, 486, 487, 493, 496, 503–505, 507–509, 511, 522, 523, 526, 528.
  - North Atlantic, vessels serving, 224.
  - Pacific, vessels serving, 224.
  - Pensacola, Fla., 419, 482, 493.
  - Port Royal, 350, 394, 419, 493.
  - Portsmouth, N. H., 389, 399, 400, 415, 416, 480, 491, 496.
  - Puget Sound, Washington, 350, 394, 419, 420.
  - Recommendations of naval constructors relative to improvements, 399–410.
  - Repairs at navy-yards, 466, 467.
  - Schedule of proposals for supplies, 480–533.
  - South Atlantic, vessels serving, 224.
  - Total cost of maintenance, fiscal year 1897, 471.
  - Value of real estate, chattels, and machinery plant, June 30, 1897, 477.

Navy-yards and stations—Continued.
    Washington, D. C., 59, 418, 482, 483, 484, 486, 490, 493, 497, 499, 505, 511, 515, 519, 522, 523, 524, 528.
    Work done during fiscal year, 389-394.
Newark, the (cruiser), 230, 231, 422.
Newport, the (gunboat), 425.
New York, the (cruiser), 224, 225, 226, 422.
Nina, the (tug), 422.
Nipsic, the (cruiser), 422.
Olympia, the (cruiser), 228, 422.
Omaha, the (cruiser), 422.
Ordnance, Bureau of:
    Appendix to report, 298-338.
        A. Abstract of offers for furnishing supplies or services, and contracts awarded thereon, 298.
        B. Estimates of appropriations, 298-300.
        C. Annual report, Naval Gun Factory, 301-306.
        D. Annual report, Naval Torpedo Station, 306-314.
        E. Annual report of the inspector of ordnance, Hartford, Conn., 314-324.
        E 2. Supplementary report of the inspector of ordnance, Hartford, Conn., 324, 325.
        F. Annual report of the Naval Proving Ground, Indian Head, Md., 326-338.
    Report of Commodore Charles O'Neil, U. S. N., Chief, 275-298.
        Accumulators and separators, 286.
        Air compressors, 286.
        Armor, 288-290.
        Automatic gun, 6-millimeter, 284.
        Automobile torpedoes and torpedo material, 284, 285.
        Breech-loading rifles, 275-279.
        Capped shell, 283.
        Changes in batteries, 281.
        Donations of condemned ordnance, 295, 296.
        Estimates of appropriations, 275.
        Fuses and primers, 284.
        Gun carriages, 279, 280.
        High explosives, 286-288.
        Naval Gun Factory, 292, 293.
        Naval magazines, 291, 292.
        Naval Proving Ground, 293, 294.
        Naval Torpedo Station, 294, 295.
        Nickel-steel gun, 8-inch, 284.
        Officers performing ordnance duty, 296, 297.
        Protective decks, 290.
        Rammers, 280, 281.
        Range finders, 281.
        Report of Ensign N. C. Twining, U. S. N., inspector of ordnance, Hartford, Conn., 314-324.
            Ammunition, 322, 323.
            Machine guns, 320, 321.
            Small arms, 321, 322.
        Secondary batteries, 281-283.
        Shields for light guns, 291.
        Sights, 281.
        Small-arm ammunition, 284.
        Small arms, 283.
        Torpedo launching apparatus, 285, 286.
        Turret mounts, 281.
Oregon, the (battle ship), 224, 225, 422.
Passaic, the (monitor), 422.
Pay of clerks to commandants, paymasters of yards, and general storekeepers, etc., 49.
Pay of officers, United States Navy, estimates of appropriations, 47, 48.
Paymaster-General of the Navy, report of. (*See* Supplies and Accounts, Bureau of.)
Pensacola, the (frigate), 422.
Pensions, navy, 547.
Petrel, the (gunboat), 238, 239, 422.
Philadelphia, the (cruiser), 224, 231, 422.
Pinta, the (tug), 224, 238, 422.
Porter, the (torpedo boat), 224, 423, 425.
Princeton, the (gunboat), 425.

Proposals and contracts:
  Battle ships Nos. 7, 8, and 9, 395.
  Bureau of Construction and Repair, contracts awarded, 346, 347.
  Bureau of Ordnance, 298.
  Bureau of Supplies and Accounts, navy-yards and stations, 480–533.
  Bureau of Yards and Docks, 185–188.
  Experimental model tank, navy-yard, Washington, D. C., 59, 399.
  Gun forgings for breech-loading rifles, 61.
  Guns, Maxim-Nordenfelt, 59.
  Ice and towels, 60.
  Marine Corps, 577, 578.
  Naval Observatory bids, 218, 219.
  Projectiles, 60.
  Shell, 59, 60.
  Stationery for Navy Department, 50–58.
  Steel gun forgings for breech-loading rifles, 59.
  Torpedo boats Nos. 9-21, 58, 395–398.
  Torpedoes, launching apparatus, 60.
  Waste paper, purchase of, 61.
Proving ground. (*See* Naval Proving Ground, Indian Head, Md.)
Puritan, the (monitor), 224, 227, 423.
Raleigh, the (cruiser), 224, 228, 229, 423.
Ranger, the (cruiser), 423.
Receipts from sales of Government property, 62–66.
Richmond, the (cruiser), 423.
Rodgers, the (torpedo boat), 425.
Rowan, the (torpedo boat), 425.
Sales of Government property, 478.
Samoset, the (tug), 423.
San Francisco, the (cruiser), 224, 230, 423.
Secretary's office:
  Estimates, proposals and contracts, 43–61. (*See also* Proposals and contracts, and estimates of appropriation.)
  Naval War Records Office. (*See* Naval War Records Office.)
  Receipts from sales of Government property, 62–66.
Ships, vessels, etc.:
  Battle ships, 345, 395.
  Completed during the last fiscal year, 344.
  Condition of machinery, 420–426.
  Contracts awarded, 346, 347.
  Cost of construction at navy-yards, 466.
  Cost of maintaining ships in commission, fiscal year ending June 30, 1897, 472–475.
  Gunboats, 345.
  Repair ships, machinery plant for, 431.
  Ships in reserve, 350, 430.
  Ships on special service, 224.
  Ships unassigned to stations, 224.
  Steam trials of new vessels, 436–440.
  Steam tugs Nos. 6 and 7, 347.
  Summary showing the number of vessels in the United States Navy, 388.
  Tables of vessels of the United States Navy, 356–388.
    Battle ships, 356–359.
    Cruisers, armored, 360, 361.
    Cruisers, protected, 366–369.
    Cruisers, unprotected, 370, 371.
    Gunboats, 372–375.
    Iron and wooden steam vessels, 382, 383.
    Monitors, 362–365.
    Ram *Katahdin*, 360.
    Special class, 376, 377.
    Steel, iron, and wooden steam tugs, 384, 385.
    Torpedo boats, 378–381.
    Unfit for sea service, 386, 387.
    Wooden sailing vessels, 384, 385.
  Value of supplies received and expended on ships in commission, 477.
  Vessels serving on stations and duties performed by each, 224–243.
  Vessels surveyed and repaired, 348.
  Vessels under construction, 347, 348.
Standish, the (cadet practice ship), 423.

Steam Engineering, Bureau of:
  Appendix to report, report of Chief Engineer E. R. Freeman, U. S. N., on steel inspection, 442, 443.
  Report of Chief Engineer G. W. Melville, U. S. N., Chief, 413–441.
    Building machinery and vessels in classes, 429.
    Condition of machinery September 1 of vessels completed or building during preceding year, 423–426.
    Enlisted men of the Engineer Department, 433, 434.
    Estimates of appropriation, 413, 440, 441.
    General operations of the Bureau, 413–415.
    Lighting machinery compartments, 430.
    Liquid fuel, 428, 429.
    Machinery of ships in reserve, 430.
    Machinery plant for repair ships, 431.
    Navy-yards and stations, 415–420.
    Personnel, 431–433.
    Present condition of machinery of naval vessels, 420–423.
    Steel inspection, 431.
    Trials of new vessels, 434–440.
    Water tube boilers, 426–428.
Steel inspection, report of Chief Engineer E. R. Freeman, U. S. N., 442, 443.
Stoney, George M. (Lieutenant, U. S. N.), memorandum regarding the Klondike, 272–274.
Stringham, the (torpedo boat), 426.
Supplies and Accounts, Bureau of:
  Appendix to report, 450–533.
    Estimates of appropriations, 450, 451.
    Schedules of proposals for supplies to navy-yards and stations, 480–533.
  Appendix to report.—General naval account for fiscal year ending June 30, 1897, 452–479.
    Statement A—
      Analysis of expenditures, fiscal year ending June 30, 1897, 457–460.
      Analysis of payments for account naval establishment, 454, 455.
      Appropriations, 452, 453
      Assets and liabilities, 455, 456.
      Receipts and expenditures, fiscal year ending June 30, 1897, 456–460.
      Receipts and payments, fiscal year ending June 30, 1897, 454.
      Requisitions drawn by the Navy Department during fiscal year ending June 30, 1897, 453.
    Statement B—
      Clothing and small stores account, 463, 464.
      Clothing and small stores fund, fiscal year ending June 30, 1897, 464.
      Clothing and small stores in transit, 465.
      Contingent stores in transit June 30, 1897, 462.
      Provisions in transit June 30, 1897, 461.
      Purchases and payments, 464, 465.
      Receipts and expenditures contingent stores, fiscal year 1897, 462.
      Receipts and expenditures of provisions, fiscal year 1897, 460–465.
    Statement C—
      Conversion account, 470.
      Cost of construction of ships, 466.
      Expenditures of money and material at shore stations, etc., 466–471.
      General maintenance, 469.
      Machinery plant, 468.
      Miscellaneous, 470.
      Real estate and chattels, 468.
      Recapitulation, 471.
      Repairs to equipage, 469.
      Repairs to ships, 466, 467.
    Statement D.—Total cost of maintenance of navy-yards and stations during fiscal year ending June 30, 1897, 471.
    Statement E.—Cost of maintaining ships in commission, fiscal year ending June 30, 1897, excepting medical stores, 472–475.
    Statement F.—Payments through the Paymaster-General's Office, fiscal year ending June 30, 1897, 476.
    Statement G.—Value of supplies on hand July 1, 1896, receipts from purchase, etc., 476.
    Statement H.—Value of supplies received and expended on ships in commission, year ending June 30, 1897, 477.